manuli® HYDRAULICS



GENERAL HYDRAULICS

PRODUCT CATALOGUE 2020

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MANULI HYDRAULICS - OUR MISSION

Manuli Hydraulics is focused on achieving excellence in the design, manufacture and supply of fluid conveyance solutions, components and associated equipment for high pressure hydraulics, refrigeration and oil and marine applications.

Just some of the application areas where Manuli Hydraulics products are used are:

- Construction and public works
- Underground and open pit mining
- Maintenance services
- Forestry
- Agriculture
- Water blasting and cleaning
- Refrigeration
- Material handling and logistics
- Industrial machines
- Industrial services
- Energy

Manuli Hydraulics Offers:

- Wire spiral reinforced rubber hoses
- Wire braid reinforced rubber hoses
- Textile braid reinforced rubber hoses
- Reinforced thermoplastic hoses
- Hose fittings
- Quick couplings
- Staple-lock fittings, adaptors and valves for underground mining applications
- Assembling machines
- Hose assemblies and hose kits for mobile refrigeration systems
- Hose assemblies for water cleaning and water blasting applications
- Hose assemblies for high and very high pressure hydraulics systems
- Other fluid connectors

INNOVATION

Manuli Hydraulics R&D activities are based at the Manuli Innovation Centre (MIC) in Bologna, Italy, which oversees the R&D centres in France, Poland, China and the UK. All of our research centres are equipped with advanced design, testing and validation facilities.

The main MIC laboratories feature special rooms and equipment that allow researchers to simulate the most extreme environmental and operational conditions including:

- Heat
- Cold
- Fog
- Fatigue (Impulse testing)
- Hydrostatic testing
- Saline environments
- Vibrations

MIC are responsible for the design and development of every aspect of our product range, from rubber compounds and hose structures, to fitting design and assembly machines. Our global R&D teams are made up of highly skilled international engineers who are dedicated to the development of integrated solutions for Manuli customers. The quality, wide selection of products and cost saving initiatives that our Innovation Centres provide allow us to better support our customers whatever their requirements.

Our Innovation Centres also focus on the development of co-design projects in confidential alliances with Original Equipment Customers. This is an additional benefit to our Partners, whilst the technological cooperation with OEMs helps our engineers to better understand the demanding and ever-evolving requirements of fluid conveying applications. Our focus on customer requirements enhances our capability and expertise in providing complete fluid connector solutions.



QUALITY CERTIFICATIONS

Quality and sustainable development are the driving forces of all Manuli Hydraulics' activities. Manuli Rubber Industries was the first European hydraulic components manufacturer to achieve the ISO 9001 certification in 1992 and the OHSAS certification in 2005.

The Manuli Group facilities are compliant to ISO 9001 and ISO 14001 and have achieved the Occupational Health and Safety Assessment Series (OHSAS) certifications as the result of it's strong commitment to the preservation of people's health & safety on the work sites.

ISO 9001 CERTIFIED PLANTS

- Manuli Rubber Industries - Italy, Innovation Centre & Headquarters
- Manuli Rubber Industries - Italy, Hydraulic Hoses
- Manuli Rubber Industries - Italy, Oil & Marine Hoses
- Manuli Hydraulics Americas (Chambersburg) - USA, Hose assemblies
- Manuli Hydraulics (Suzhou) - PRC, Hydraulic Hoses
- Manuli Hydraulics (Suzhou) - PRC, Hose assemblies
- Manuli Hydraulics Manufacturing (Radomsko) - Poland, Hydraulic Hoses
- Manuli Hydraulics Polska - Poland, HY Connectors, Refri & A/C systems
- Manuli Hydraulics - UK, Hose assemblies
- Manuli Hydraulics Europe - Czech Rep., Hose assemblies
- Manuli Hydraulics - India, Hose assemblies
- Manuli Hydraulics Korea - S. Korea, Hose assemblies
- Manuli Otim - France, Hose assemblies
- Techmaflex - France, Assembling machines
- Fluiconnecto by Manuli - South Africa
- Fluiconnecto by Manuli - The Netherlands

ISO 14001 CERTIFIED PLANTS

- Manuli Rubber Industries - Italy - Hydraulic Hoses
- Manuli Rubber Industries - Italy - Oil & Marine Hoses
- Manuli Hydraulics (Suzhou) - P.R.C. - Hydraulic Hoses
- Manuli Hydraulics (Suzhou) - P.R.C. - Hose assemblies
- Manuli Hydraulics Polska - Poland - HY Connectors, Refri & A/C systems
- Manuli Hydraulics UK - United Kingdom - Hose assemblies
- Manuli Hydraulics Europe - Czech Rep. - Hose assemblies
- Manuli Hydraulics Korea - Korea - Hose assemblies
- Manuli Hydraulics India - India - Hose assemblies

OHSAS 18001 CERTIFIED PLANTS

- Manuli Hydraulics (Suzhou) - PRC, Hydraulic Hoses
- Manuli Hydraulics (Suzhou) - PRC, Hose assemblies
- Fluiconnecto by Manuli - South Africa

THIRD PARTY APPROVALS

Manuli products meet and exceed the highest industry standards as proven by the achievement of our extensive list of technical approvals issued by third party accreditation bodies.

MINING APPROVALS

- FRAS (Fire Resistant and Anti-Static Australian Dept. Mineral Resource)
- MSHA (Mine Safety and Health Administration - USA)
- Polish B Safety certification
- MA (Chinese Mining Approval)

OIL AND GAS APPROVALS

- API (American Petroleum Institute) Monogram License 7K
- API (American Petroleum Institute) Monogram License 5L
- API (American Petroleum Institute) 16D Fire test
- QS mark by AQSIQ (General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China)

MARINE EQUIPMENT APPROVALS

- ABS (American Bureau of Shipping)
- BV (Bureau Veritas)
- DNV-GL (Det Norske Veritas - Germanischer Lloyd)
- MED (Marine Equipment Directive)
- RINA (Italian Bureau of Shipping)
- KRS (Korean Register of Shipping)
- LR (Lloyd's Register of Shipping)
- CCS (China Classification Society)
- NKK (Nippon Kaiji Kyokai)

GOVERNMENT SAFETY APPROVALS

- DB (DIN 5510-2) - German Railway
- DB (EN 45545-2) - Europe Railway (requested)
- CU-TR - Russian Fed. & CIS
- EN 81-2 - Safety of hydraulic elevators

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HYDRAULICS



HYDRAULIC HOSES

INTRODUCTION TO THE MANULI HOSE RANGE

The Manuli Hydraulics range of hydraulic hoses is a comprehensive selection of products aimed at supporting both general and speciality hydraulics applications in a wide range of environments. From construction and agriculture to mining, forestry and offshore, Manuli hoses are designed to meet and surpass the most demanding operational and environmental requirements, ensuring long life, high performance and reliable service.

Manuli hoses are categorised according to our unique G.H.P. System, which helps users to identify the type of properties required for their specific applications.

The G.H.P. System for hydraulic hoses comprises the following 3 categories:

GLOBAL STANDARD

Suitable for a wide variety of general hydraulic applications, the Global Standard range of hoses are designed to meet the requirements of various international norms, including ISO, BS, SAE and JIC. Featuring some of Manuli's most successful and widely used product lines, the Global Standard range offers high quality and reliability in most standard hydraulic applications.

HI-GRADE

These hoses are designed to meet and exceed the international specifications, making them ideal for high performance products and harsh environments. Suited to both OEM and aftermarket maintenance these hoses are split into two sections according to the selection criteria across the range. As such the range comprises hoses which use traditional design methodologies where working pressure varies according to the hose size, and Isobaric hoses, where working pressure is constant across all sizes according to the specifications of ISO 18752.

PREMIUM

A superior range of products designed for the utmost performance in specific applications, these hoses are designed to surpass expectations and requirements. Featuring some of the most advanced hose design on the market today, these products demonstrate what can be achieved when decades of experience, intelligent design and collaboration with industry leaders are brought seamlessly together. Many of the hoses in this range have advanced properties or are designed to resist specific environmental challenges.



MANULI COVER TECHNOLOGY

Choosing the correct hydraulic hose for the job requires careful consideration. The widespread use of hydraulics in a variety of industries and environments means that characteristics such as robustness, flexibility, chemical resistance and operating temperature must all be considered.

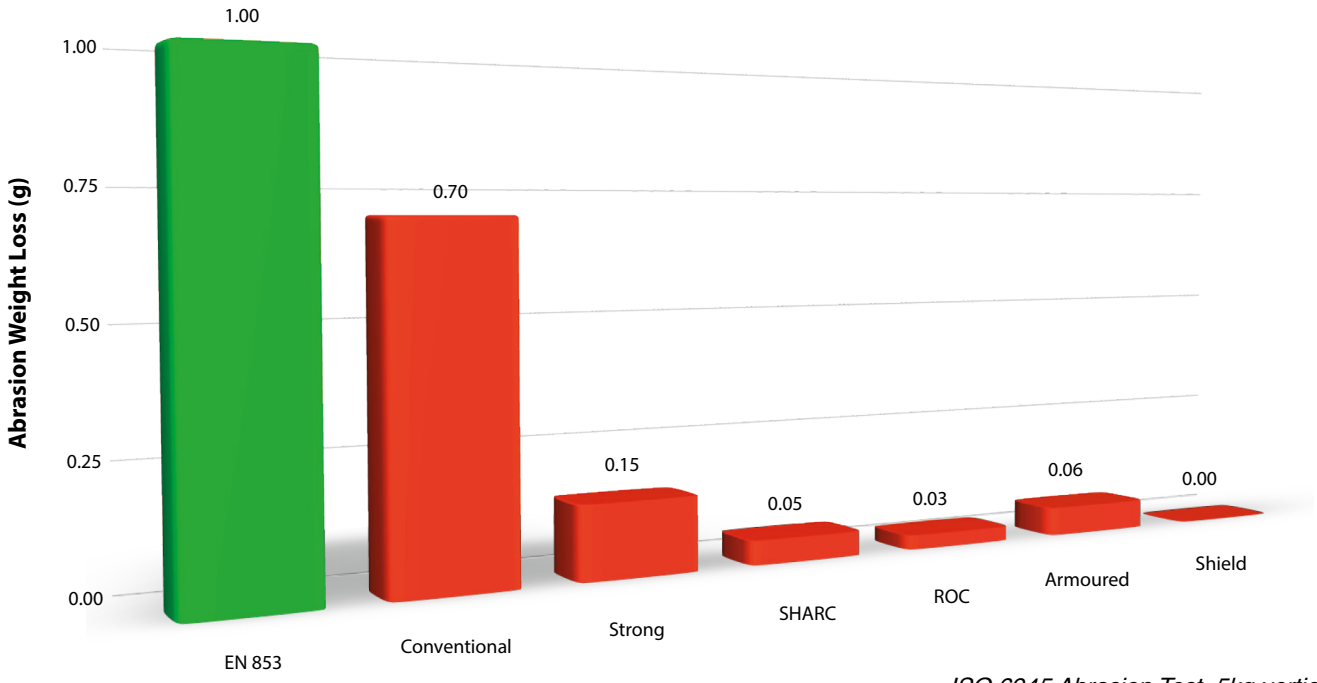
However, most experts agree that the hose cover is the singular most important part of a hose's construction, as wear of the cover due to environmental factors is the primary cause of hose failure. It is therefore critical that the hose cover be as robust and long-lasting as it can be, whilst also meeting the other specific requirements of the system it is included in.

Manuli Hydraulics has developed a range of highly innovative and proprietary cover materials and structures to ensure maximum service life in even the most harsh of environmental conditions. The outstanding performance of our cover materials compared to many of our competitors' products illustrates the fact that, whilst hose selection itself may be complex, making sure you choose the right cover need not be.

Progressively developed over several years and multiple hose families, the Manuli Hydraulics range of hose cover solutions is many and varied. Aside from certain application-specific covers dedicated to unique hose families, Manuli offers 6 fundamental hose cover types:

- **Conventional Cover** - "STD" & "XT" Type
- **Strong Cover** - "SD" & "SC" Type
- **Super High Abrasion Resistant Cover (SHARC)**
- **Rubber Outstanding Cover (ROC.)**
- **Armoured Cover**
- **Shield Cover**

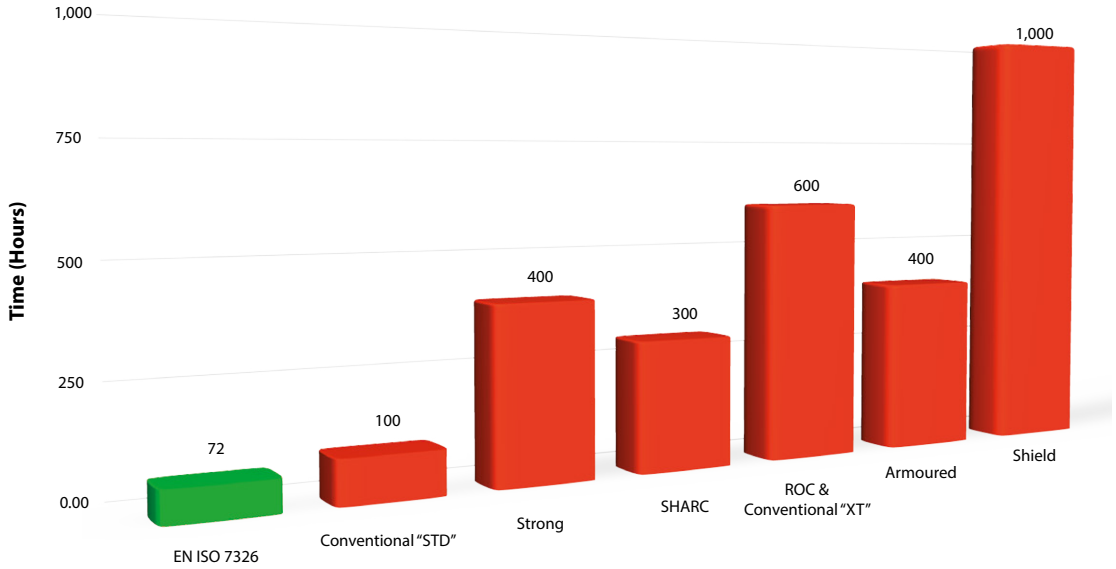
The relative abrasion resistance performance of each of these cover types compared to EN 853 can be assessed from the below graph:



ISO 6945 Abrasion Test, 5kg vertical force

In addition to their outstanding performance against abrasion, the these covers also boast a high level of resistance to cracking due to ozone exposure. The general rule of thumb is that abrasion resistance and ozone resistance for a cover compound are inversely proportional. So high abrasion resistance leads to poor ozone resistance, and vice versa.

However, in contrast to these typical material limitations, each of the above Manuli cover compounds performs noticeably better than the required test specification, EN ISO 7326.



EN ISO 7326 Ozone Resistance Test

CONVENTIONAL COVER

As Manuli's base-line cover compound, the Conventional Cover is fully compliant to current international specifications for both abrasion and ozone resistance.

Used primarily on the classic Manuli hose ranges, such as **Tractor**, this cover is robust enough for most general hydraulic applications where excessive abrasion or ozone exposure is not expected.

With a working temperature range of -40°C to +100°C, hoses with the Conventional Cover are prime examples of the perfect balance between reliability, toughness and value.

"XT" Type - The Conventional Cover is also used as the basis for the "XT" type covers used on premium hose ranges such as **Equator**. In these cases, the abrasion resistance characteristic remain consistent with the Conventional Cover, but the covers have significantly upgraded ozone resistance and an extended operational temperature range of -55°C to + 135°C.

STRONG COVER

As the first major performance step change in both abrasion and ozone resistance, the Strong Cover out-performs the Conventional Cover four times over in these areas. It is for this reason that two of Manuli's core product families, **RockMaster** and **GoldenIso** (except AntiWear) use this cover type.

The Strong Cover comes in two types:

"SD" Type - Used on the majority of **RockMaster** products, the "SD" cover has a minimum working temperature of -40°C.

"SC" Type - Used on the new **Cryoflex** range, the "SC" cover compound has an extreme resistance to low temperatures, allowing it to remain flexible down to -60°C.

SUPER HIGH ABRASION RESISTANT COVER - SHARC

Developed as a high-protection cover, the SHARC solution provides abrasion and weathering resistance to a standard which makes it ideal for all but the most extreme of applications.

Used on the **GoldenIso AntiWear** and **Xtraflow** hydraulic hose ranges, the SHARC solution ensures long lasting, reliable hose protection in some of the toughest operational environments.

The SHARC solution also has high fire resistance and anti-static properties, making it suitable for use in highly regulated applications such as mining and offshore drilling.

RUBBER OUTSTANDING COVER - ROC

Specifically designed for extreme abrasion and weathering resistance on heavy duty hoses, the ROC solution easily out-performs all but the toughest and most resilient hose cover solutions.

Used on the newly released **RockMaster/2 Plus Super-AntiWear** hose family and within the new **ForeMaster** range, the ROC solution has already proven itself to be a superb investment for use in the harshest of environmental conditions.

Once again, a high fire and anti-static resistance, coupled with an ability to function at very low temperatures, makes the ROC solution a highly versatile addition to the Manuli Hydraulics cover solutions range.

ARMOURED COVER

The Armoured Cover is the culmination of years of research and development in both hose structural design and rubber compound formulation. This innovative new cover is made up of two fundamental elements:

- Outer cover made from a proprietary, specially formulated anti-wear rubber compound
- High-tensile textile breaker layer

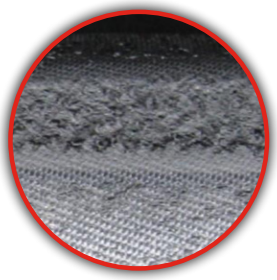
The Armoured Cover is currently used on the higher pressure hose lines within the **ForeMaster** range of hoses.

Putting it to the test

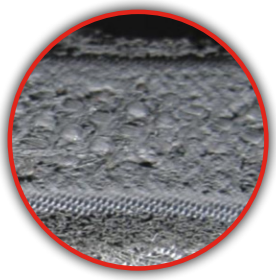
In standard ISO 6945 abrasion tests a reciprocating 5kg load is used to create wear on the hose cover. The test lasts for 2,000 cycles and measures the mass of material lost. The lower the result, the better the performance.

However, to truly test the performance of the Armoured Cover, Manuli devised a more severe test. A 10kg reciprocating load was used, and the number of cycles required to expose the steel reinforcement was determined. In this case, the higher the result, the better the performance.

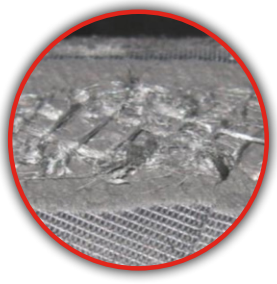
Whilst hoses with the Armoured Cover performed up to 4 times better than the competition in standard ISO 6945 abrasion tests, they lasted as much as 30 times longer before the steel reinforcement was exposed.



2,000 cycles (10kg)

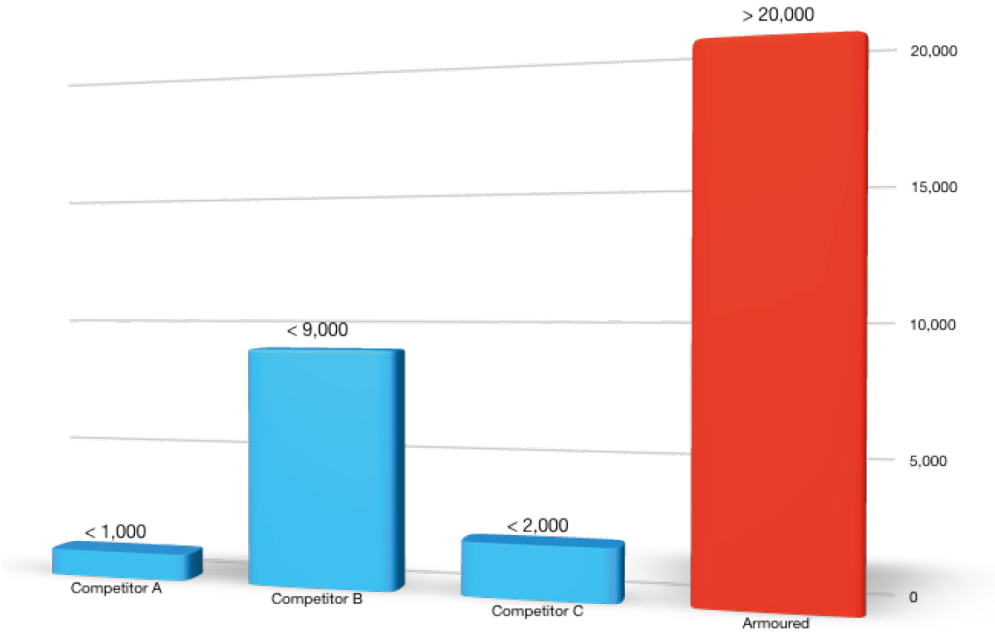


20,000 cycles (10kg)



60,000 cycles (10kg)

Number of Cycles Before Reinforcement Exposure



Modified ISO 6945 Abrasion Test, 10kg vertical force

SHIELD COVER

The Shield Cover solution is designed for maximum hose to hose abrasion and weathering resistance in none friction-flexing and non-impact applications.

Used throughout the **ShieldMaster** hose family and comprising a robust synthetic rubber layer with an additional ultra-high molecular weight polyethylene (UHMWPE) outer skin, the Shield Cover outperforms all other Manuli cover types in its resistance to both abrasion and ozone.

In fact the abrasion resistance of the Shield Cover is so great that under standard ISO 6945 test conditions it is necessary to perform around 1 million cycles to register a discernible weight loss.

The self-lubricating properties of UHMWPE make the Shield Cover perfect for situations where bunches of hoses rub against each other, and the smooth cover finish provides an easy-to-clean alternative to spring guards.

In addition to its outstanding abrasion and weathering resistance, the Shield Cover also resists cracking down to -46°C and has flame retardant and anti-static properties, making it suitable for use in even the harshest environments.

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WHERE ARE THE COVERS USED?

DN	5	6	8	10	12	16	19	25	31	38	51	60	63	76	89	102
ASTRO/2		STD	STD	STD	STD	STD	STD	STD	STD							
ASTRO/3		STD	STD	STD	STD	STD	STD	STD	STD	STD	STD					
HARVESTER/17		STD	STD	STD	STD											
JACKMASTER/70		STD		STD												
LUBEMASTER		STD		STD												
LYTE-FLEX		STD	STD	STD	STD	STD	STD	STD								
MULTITEX	STD	STD	STD	STD	STD	STD	STD	STD								
PUSHFIT		STD	STD	STD	STD	STD	STD	STD								
SPIRTEX							STD	STD	STD	STD	STD		STD	STD	STD	STD
TRACTOR/1SN		STD	STD	STD	STD											
TRACTOR/2SN		STD	STD	STD	STD											
TWINPOWER 4000				STD	STD											
EQUATOR/1 (BLACK)		XT	XT	XT	XT	XT	XT	XT	XT	XT	XT		XT			
EQUATOR/1 (BLUE)		XT	XT	XT	XT	XT	XT	XT	XT	XT	XT		XT			
EQUATOR/2 (BLACK)		XT	XT	XT	XT	XT	XT	XT	XT	XT	XT					
EQUATOR/2 (BLUE)		XT	XT	XT	XT	XT	XT	XT	XT	XT	XT					
DIAMONDSPIR							SD	SD	SD	SD	SD					
ROCKMASTER/12				SD	SD	SD	SD	SD	SD	SD	SD					
ROCKMASTER/13		SD		SD	SD		SD	SD	SD	SD	SD					
ROCKMASTER/15							SD	SD	SD	SD	SD					
ROCKMASTER/1SC		SD	SD	SD	SD	SD	SD	SD	SD	SD	SD			SD		
ROCKMASTER/1SN		SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD				
ROCKMASTER/2SC	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD		SD	SD		
ROCKMASTER/2SN		SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD				
ROCKMASTER/2ST	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD					
ROCKMASTER/4SH						SD	SD	SD	SD	SD	SD					
ROCKMASTER/4SP		SD		SD	SD	SD	SD	SD	SD	SD	SD					
SYNERGY		SC		SC	SC	SC	SC	SC	SC							
TWINPOWER 5000			SD	SD	SD											
TWINPOWER/PLUS					SD											
ANACONDA							SC	SC	SC	SC						
CRYOFLEX/21						SC	SC	SC								
CRYOFLEX/35		SC	SC	SC	SC		SC	SC	SC							
CRYOFLEX/42							SC	SC	SC		SC					
DIAMONDSPIR/14														SC		
DIAMONDSPIR/17														SC	SC	
DIAMONDSPIR/21													SC	SC		
DIAMONDSPIR/35													SC	SC		
DIAMONDSPIR/62									SC	SC						
GOLDENISO/38 LONGLIFE							SC	SC	SC	SC	SC					
GOLDENISO/45 LONGLIFE		SC			SD	SD	SD	SD								
GOLDENISO/14 PILOT		SC	SC	SC	SC											
GOLDENISO/21 XTRAFLEX									SC	SC	SC					
GOLDENISO/28 XTRAFLEX				SC	SC	SC	SC	SC	SC	SC	SC					
GOLDENISO/35 XTRAFLEX				SC	SC	SC	SC	SC	SC	SC	SC					
GOLDENISO/42 XTRAFLEX		SC		SC	SC	SC	SC	SC	SC	SC						
GOLDENMINE													SC			
HERCULES/HT									SC	SC	SC					
HYDROROPE									SC	SC	SC					
INFINITY		SC	SC	SC	SC	SC	SC	SC								
GOLDENISO/21 ANTIWEAR																
GOLDENISO/28 ANTIWEAR																
XTRAFLOW/2WB																
XTRAFLOW/4WS																
XTRAFLOW/HT													XT	XT	XT	
ROCKMASTER/2 PLUS SUPER-AW																
FOREMASTER/21																
FOREMASTER/28																
FOREMASTER/35																
FOREMASTER/42																
SHIELDMASTER/21																
SHIELDMASTER/28																
SHIELDMASTER/35																
SHIELDMASTER/42																

CONVENTIONAL STD / XT

STRONG SD / SC

SHARC

ROC

ARMOURED

SHIELD

RANGE	HOSE	HOSE STRUCTURE	NORM	KEY PERFORMANCE	PAGE
GLOBAL STANDARD HOSES	TRACTOR/1SN	WIRE BRAIDED	EN 853, ISO 1436-1SN, SAE J517-100R1AT	STANDARD HYDRAULIC APPLICATIONS	16
	TRACTOR/2SN	WIRE BRAIDED	EN 853, ISO 1436-2SN, SAE J517-100R-2AT	STANDARD HYDRAULIC APPLICATIONS	17
	LYTE-FLEX	WIRE BRAIDED	MANULI DESIGN (COMPACT WIRE BRAIDED)	HIGH FLEXIBILITY	18
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RANGE	HOSE	HOSE STRUCTURE	NORM	KEY PERFORMANCE	PAGE
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	GOLDENISO/21 ANTIWEAR	WIRE BRAIDED	ISO 18752-A, ISO 11237-R17, SAE J517-100R17	EXTREME ABRASION RESISTANCE	27
	GOLDENISO/28 ANTIWEAR	WIRE BRAIDED	ISO 18752-A, ISO 11237-R19, SAE J517-100R19	EXTREME ABRASION RESISTANCE	28
	GOLDENISO/21 XTRAFLEX	WIRE SPIRALLED	ISO 18752-C/D, JIS K6349	EXTREME FLEXIBILITY	29
	GOLDENISO/28 XTRAFLEX	WIRE SPIRALLED	ISO 18752-C/D, JIS K6349	EXTREME FLEXIBILITY	30
	GOLDENISO/35 XTRAFLEX	WIRE SPIRALLED	ISO 18752-C/D, JIS K6349	EXTREME FLEXIBILITY	31
	GOLDENISO/42 XTRAFLEX	WIRE SPIRALLED	ISO 18752-C/C PLUS	EXTREME FLEXIBILITY	32
	GOLDENISO/38 LONGLIFE	WIRE SPIRALLED	ISO 18752-C/D	HIGH FATIGUE RESISTANCE	33
	GOLDENISO/45 LONGLIFE	WIRE SPIRALLED	ISO 18752-D EXT., ISO 11237-R15, SAE J517-100R15	HIGH FATIGUE RESISTANCE	34
	SHIELDMASTER/21	WIRE BRAIDED	ISO 18752-B	OUTSTANDING WEAR RESISTANCE	35
	SHIELDMASTER/28	WIRE BRAIDED AND SPIRALLED	ISO 18752-B	OUTSTANDING WEAR RESISTANCE	36
	SHIELDMASTER/35	WIRE BRAIDED AND SPIRALLED	ISO 18752-B	OUTSTANDING WEAR RESISTANCE	37
	SHIELDMASTER/42	WIRE BRAIDED AND SPIRALLED	ISO 18752-B	OUTSTANDING WEAR RESISTANCE	38
	DIAMONDSPIR/14	WIRE SPIRALLED	MANULI DESIGN, ISO 18752-C EXT.	HIGH FLOW RATES, OUTSTANDING ABRASION RESISTANCE	39
	DIAMONDSPIR/17	WIRE SPIRALLED	MANULI DESIGN, ISO 18752-C EXT.	HIGH FLOW RATES, OUTSTANDING POWER TRANSMISSION	40
	DIAMONDSPIR/21	WIRE SPIRALLED	MANULI DESIGN, ISO 18752-C EXT.	VERY HIGH HYDRAULIC POWER TRANSMISSION	41
	DIAMONDSPIR/35	WIRE SPIRALLED	MANULI DESIGN, ISO 18752-C EXT.	VERY HIGH HYDRAULIC POWER TRANSMISSION	42
	MASTERTEX	TEXTILE	EXCEEDS SAE 100 R6, ISO 4079 R6/1TE	LOW PRESSURE, HIGH TEMPERATURE	43

RANGE	HOSE	HOSE STRUCTURE	NORM	KEY PERFORMANCE	PAGE
HI-GRADE TRADITIONAL HOSES	ROCKMASTER/1SC	WIRE BRAIDED	EN 857, ISO 11237-1SC	ABRASION, WEATHER & HEAT RESISTANCE	44
	ROCKMASTER/2SC	WIRE BRAIDED	EN 857, ISO 11237-2SC, SAE J517-100R16	ABRASION, WEATHER & HEAT RESISTANCE	45
	ROCKMASTER/1SN	WIRE BRAIDED	EN 853, ISO 1436-1SN, SAE J517-100R1AT	ABRASION, WEATHER & HEAT RESISTANCE	46
	ROCKMASTER/2SN	WIRE BRAIDED	EN 853, ISO 1436-2SN, SAE J517-100R2AT	ABRASION, WEATHER & HEAT RESISTANCE	47
	ROCKMASTER/2ST	WIRE BRAIDED	EN 853, ISO 1436-2ST	ABRASION, WEATHER & HEAT RESISTANCE	48
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	ROCKMASTER/4SH	WIRE SPIRALLED	EN 856, ISO 3862-4SH	ABRASION, WEATHER & HEAT RESISTANCE	50
	ROCKMASTER/4SP	WIRE SPIRALLED	EN 856, ISO 3862-4SP	ABRASION, WEATHER & HEAT RESISTANCE	51
	ROCKMASTER/12	WIRE SPIRALLED	EN 856, ISO 3862-R12, SAE J517-100R12	ABRASION, WEATHER & HEAT RESISTANCE	52
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	DIAMONDSPIR	WIRE SPIRALLED	MANULI DESIGN, EXCEEDS ISO 3862-R15, SAE J517-100R15	VERY HIGH PRESSURE RATING	60
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	XTRAFLOW/HT	WIRE BRAIDED	MANULI DESIGN	HIGH TEMPERATURE, SUCTION AND RETURN LINES	64
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	FOREMASTER/28	WIRE BRAIDED	ISO 18752-C, EXCEEDS SAE J517 TYPE 100R19 & ISO 11237-R19	OUTSTANDING ABRASION RESISTANCE	70
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	HERCULES/HT	WIRE SPIRALLED	ISO 18752-D EXT., EXCEEDS SAE J517 R15	HEAVY DUTY FOR GIANT EQUIPMENT	77
	HYDROROPE	WIRE BRAIDED AND SPIRALLED	MANULI DESIGN	OUTSTANDING TENSILE STRENGTH	78
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	SAFEMASTER/2SN	WIRE BRAIDED	EN 853 2SN; SAE 100 R2AT; ISO 1436 2SN/R2AT	RAILWAYS - EN 45545-2	85
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manuli® HYDRAULICS

HOSE SIZE	WORKING PRESSURE (bar)																			
DN	5	6	8	10	12	16	19	22	25	28	31	35	38	46	51	60	63	76	89	102
dash	-03	-04	-05	-06	-08	-10	-12	-16	-16	-20	-20	-24	-24	-32	-32	-38	-40	-48	-56	-64
ANACONDA							420		420		420		420							
ASTRO/2		75	68	63	58	50	45		40		35									
ASTRO/3		145	130	110	93	80	70		55		45		40		33					
COVER	210	210	157	140	122	105		56		43		35		24						
CRYOFLEX/21						210	210													
CRYOFLEX/35		350		350	350		350		350		350									
CRYOFLEX/42							420		420						420					
DIAMONDSPIR							560		560		525		475		420					
DIAMONDSPIR/14																		140		
DIAMONDSPIR/17																		170	170	
DIAMONDSPIR/21																	210	210		
DIAMONDSPIR/35																	350	350		
DIAMONDSPIR/62											621									
EQUATOR/1		225	215	180	160	130	105		88		65		50		40		35			
EQUATOR/2		400	350	330	275	250	215		175		150		100		90					
FIREND		225		180	160		105		88											
FOREMASTER/21		210	210	210	210	210	210		210											
FOREMASTER/28		280	280	280	280	280	280													
FOREMASTER/35							350		350		350									
FOREMASTER/42							420		420						420					
GOLDENARMOUR				345	345	345	345		345		345		345		345					
GOLDENGUARD/3000							207		207											
GOLDENGUARD/5000				345	345	345	345		345		345		345		345					
GOLDENISO/14 PILOT	140	140	140	140	140															
GOLDENISO/21 ANTIWEAR	210	210	210	210	210	210	210		210											
GOLDENISO/28 ANTIWEAR		280	280	280	280	280	280													
GOLDENISO/38 LONGLIFE							380		380		380									
GOLDENISO/45 LONGLIFE		460				460	460		460		450		450							
GOLDENISO/21 XTRAFLEX											210		210		210					
GOLDENISO/28 XTRAFLEX				280	280	280	280		280		280		280		280					
GOLDENISO/35 XTRAFLEX				350	350	350	350		350		350		350		350					
GOLDENISO/42 XTRAFLEX		420		420	420	420	420		420		420		420		420					
GOLDENMINE																	350			
HARVESTER/17		210	210	210	210															
HERCULES/HT											420		420		420					
HYDROROPE											420		420							
INFINITY		450	400	400	360	320	320		225											
JACKMASTER/70		700		700																
LUBEMASTER		210		210																
LYTE-FLEX		350	297	280	245	210	210		140											
MASTERTEX		30		30	30	30														
MULTITEX	35	30	30	30	30	30	30		30											
PUSHFIT		35	35	35	25	25	21		14											
ROCKMASTER/1SC		260	250	225	190	150	150		110		75		50		50					

HOSE SIZE	WORKING PRESSURE (bar)																			
DN	5	6	8	10	12	16	19	22	25	28	31	35	38	46	51	60	63	76	89	102
dash	-03	-04	-05	-06	-08	-10	-12	-16	-16	-20	-20	-24	-24	-32	-32	-38	-40	-48	-56	-64
ROCKMASTER/2SC	420	400	350	330	275	250	245		210		140		100		90		70	45		
ROCKMASTER/1SN		225	215	180	160	130	105		90		65		50		40	50				
ROCKMASTER/2SN		400	350	350	350	250	215		175		140		100		90	90				
ROCKMASTER/2ST	415	400	350	350	350	250	215		175		140		100		90					
ROCKMASTER/2 PLUS SUPER A/W		450		400	362	340	310		240		175		146		112			70		
ROCKMASTER/4SH						450	420		385		350		300		250					
ROCKMASTER/4SP		485		450	420	380	380		320		210		185		175					
ROCKMASTER/12				280	280	280	280		280		210		175		175					
ROCKMASTER/13		690		690	620		350		350		350		350		350					
ROCKMASTER/15							420		420		420		420							
SAFEMASTER/2SC		400	350	350	275	250	245		210											
SAFEMASTER/2SN		400	350	350	350	250	215		175		140		100							
SHIELDMASTER/21		210	210	210	210	210	210		210											
SHIELDMASTER/28		280	280	280	280	280	280		280		280									
SHIELDMASTER/35		350	350	350	350	350	350		350		350		350		350					
SHIELDMASTER/42		420		420	420		420		420		420		420		420					
SPIRTEX							21		17		14		11		7		4	4	3	3
SPIRTEX/HT							25		25		17		17		10		10	7	5	5
SYNERGY		450		450	420		365		300		210									
T°REX											43									
TRACTOR/1SN		225	215	180	160															
TRACTOR/2SN		400	350	330	275															
TWINPOWER 4000				280	280															
TWINPOWER 5000			350	350	350															
TWINPOWER/PLUS					310															
XTRAFLOW/2WB																	105	80	35	
XTRAFLOW/4WS																	140	105	80	35
XTRAFLOW/HT																	35	35	35	
XTRAFLOW/HTEX																	35			

	HYDRAULICS, MARINE EQUIPMENT TYPE APPROVALS									MINING SAFETY TYPE APPROVALS				GOVERNMENT, SAFETY AND SPECIAL TYPE APPROVALS	
	ABS	BV	CCS	DNV-GL	KRS	LLOYD'S REGISTER	RINA	MED	NK	MSHA	POLISH "B"	FRAS	MA	Railways EN 44545-2	CU-TR
ANACONDA										*					*
ASTRO/2				*											
ASTRO/3				*											
COVER															*
CPH/2SC										*					*
CRYOFLEX/21										*					*
CRYOFLEX/35										*					*
CRYOFLEX/42										*					*
DIAMONDSPIR	*									*		*	*		*
DIAMONDSPIR/14	*		*	*						*		*			*
DIAMONDSPIR/17										*					*
DIAMONDSPIR/21	*		*	*						*			*		*
DIAMONDSPIR/35	*		*	*						*		*	*		*
DIAMONDSPIR/62										*					*
EQUATOR/1	*			*		*		*		*					*
EQUATOR/1 (BLUE)	*	*		*		*		*		*					*
EQUATOR/2	*			*		*		*		*					*
EQUATOR/2 (BLUE)	*	*		*		*		*		*					*
FIREND										*					*
FOREMASTER/21										*					*
FOREMASTER/28										*					*
FOREMASTER/35										*					*
FOREMASTER/42										*					*
GOLDENARMOUR	*		*	*		*									*
GOLDENGUARD/3000	*		*	*		*				*					*
GOLDENGUARD/5000	*		*	*		*				*					*
GOLDENISO/14 PILOT										*					*
GOLDENISO/21 ANTIWEAR								*		*		*			*
GOLDENISO/28 ANTIWEAR				*				*		*		*			*
GOLDENISO/38 LONGLIFE										*		*			*
GOLDENISO/45 LONGLIFE										*		*			*
GOLDENISO/21 XTRAFLEX	*	*				*		*	*	*		*	*		*
GOLDENISO/28 XTRAFLEX	*	*	*			*		*	*	*		*	*		*
GOLDENISO/35 XTRAFLEX	*	*		*		*	*	*		*	*	*	*		*
GOLDENISO/42 XTRAFLEX	*	*		*		*	*	*		*	*	*	*		*
GOLDENMINE										*			*		*
HARVESTER/17						*									*
HERCULES/HT										*					*
HYDROROPE										*					*
INFINITY															*
JACKMASTER/70															*
LUBEMASTER															*
LYTE-FLEX						*									*
MASTERTEX															

	HYDRAULICS, MARINE EQUIPMENT TYPE APPROVALS									MINING SAFETY TYPE APPROVALS				GOVERNMENT, SAFETY AND SPECIAL TYPE APPROVALS	
	ABS	BV	CCS	DNV-GL	KRS	LLOYD'S REGISTER	RINA	MED	NK	MSHA	POLISH "B"	FRAS	MA	Railways EN 44545-2	CU-TR
MULTITEX															
PUSHFIT															
ROCKMASTER/1SC	*		*	*		*				*					*
ROCKMASTER/2SC	*	*	*	*		*	*	*	*	*	*	*	*		*
ROCKMASTER/1SN	*	*	*	*	*	*	*	*	*	*		*	*		*
ROCKMASTER/2SN	*	*	*	*	*	*	*	*	*	*	*	*	*		*
ROCKMASTER/2ST	*	*				*	*			*	*	*			*
ROCKMASTER/2 PLUS SUPER A/W										*					*
ROCKMASTER/4SH	*	*	*	*	*	*	*	*	*	*	*	*	*		*
ROCKMASTER/4SP	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ROCKMASTER/12	*	*		*		*		*	*	*	*	*	*		*
ROCKMASTER/13	*	*	*	*		*	*	*		*	*	*	*		*
ROCKMASTER/15	*	*	*	*		*	*	*		*	*	*	*		*
SAFEMASTER/2SC														*	*
SAFEMASTER/2SN														*	*
SHIELDMASTER/21										*		*			*
SHIELDMASTER/28										*		*			*
SHIELDMASTER/35										*		*			*
SHIELDMASTER/42										*		*			*
SPIRTEX															*
SPIRTEX/HT															*
SYNERGY										*					*
T°REX															*
TRACTOR/1SN		*		*	*			*	*	*					*
TRACTOR/2SN		*		*	*			*	*	*					*
TWINPOWER 4000															*
TWINPOWER 5000										*					*
TWINPOWER/PLUS										*					*
XTRAFLOW/2WB	*			*						*		*	*		*
XTRAFLOW/4WS	*			*						*					*
XTRAFLOW/HT	*			*						*					*

GLOBAL STD. ● HI-GRADE ● PREMIUM

manuli HYDRAULICS

TRACTOR/1SN

INTEGRATED, RELIABLE HOSE ASSEMBLY



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H02004A06*	6	-4	1/4"	11.2	0.44	13.2	0.52	225	3,260	900	13,050	100	3.94	220	0.15	MF+M03400-04	OPF-04
H02004008*	8	-5	5/16"	12.8	0.50	14.8	0.58	215	3,110	850	12,320	114	4.49	270	0.18	MF+M03400-05	OPF-05
H02004010*	10	-6	3/8"	15.1	0.59	17.1	0.67	180	2,610	720	10,440	127	5.00	340	0.23	MF+M03400-06	OPF-06
H02004012*	12	-8	1/2"	18.1	0.71	20.1	0.79	160	2,320	640	9,280	178	7.01	400	0.27	MF+M03400-08	OPF-08

KEY FEATURES

- EN/DIN and new SAE rated working pressures
- Flame retardant property of the cover compound, MSHA approved
- Smooth cover FRAS approved (DN 5-12)
- Halogen-Free hose line

APPLICATIONS & FLUIDS

- Hydraulics: low-medium pressure lines, return lines
- Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

100 °C, 212 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

One high tensile steel braid

COVER

Weather resistant synthetic rubber

APPLICABLE SPECS

EN 853 1SN; SAE 100 R1AT; ISO 1436 1SN/R1AT

TYPE APPROVALS

MSHA, ABS; BV; DNV-GL; NK; CU-TR; KRS; LR; DNV-GL(MED)

manuli® HYDRAULICS

TRACTOR/2SN

INTEGRATED, RELIABLE HOSE ASSEMBLY



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H01027006*	6	-4	1/4"	12.7	0.50	14.7	0.58	400	5,800	1,600	23,200	100	3.94	370	0.25	MF+M03400-04	OPF-04
H01027008*	8	-5	5/16"	14.3	0.56	16.3	0.64	350	5,070	1,400	20,300	114	4.49	410	0.28	MF+M03400-05	OPF-05
H01027010*	10	-6	3/8"	16.7	0.66	18.7	0.74	330	4,780	1,320	19,140	127	5.00	530	0.36	MF+M03400-06	OPF-06
H01027012*	12	-8	1/2"	19.8	0.78	21.8	0.86	275	3,980	1,100	15,950	178	7.01	620	0.42	MF+M03400-08	OPF-08

KEY FEATURES

- EN/DIN and new SAE rated working pressures
- Wide range of TYPE APPROVALS available
- Flame retardant property of the cover compound, MSHA approved
- Halogen-Free hose line

APPLICATIONS & FLUIDS

- Hydraulics: medium-high pressure lines
- Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

100 °C, 212 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Two high tensile steel braids

COVER

Weather resistant synthetic rubber

APPLICABLE SPECS

EN 853 2SN; SAE 100 R2AT; ISO 1436 2SN/R2AT

TYPE APPROVALS

MSHA, ABS; BV; DNV-GL; CU-TR; KRS; NK; LR; DNV-GL(MED)

manuli® HYDRAULICS

LYTE-FLEX

COMPACT WIRE BRAID, INTEGRATED RELIABLE HOSE ASSEMBLY



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H01084006*	6	-4	1/4"	11.6	0.46	13.2	0.52	350	5,070	1,400	20,300	50	1.97	265	0.18	MF+M03400-04	OPF-04
H01084008*	8	-5	5/16"	12.9	0.51	14.5	0.57	297	4,300	1,190	17,250	55	2.17	290	0.19	MF+M03400-05	OPF-05
H01084010*	10	-6	3/8"	15.4	0.61	17.0	0.67	280	4,060	1,120	16,240	63	2.48	385	0.26	MF+M03400-06	OPF-06
H01084012*	12	-8	1/2"	18.5	0.73	20.3	0.80	245	3,550	980	14,210	88	3.46	465	0.31	MF+M03400-08	OPF-08
H01084016*	16	-10	5/8"	22.2	0.87	24.0	0.94	210	3,040	840	12,180	100	3.94	630	0.42	MF+M03400-10	OPF-10
H01084019*	19	-12	3/4"	25.6	1.01	27.7	1.09	210	3,040	840	12,180	120	4.72	790	0.53	MF+M03400-12	OPF-12
H01084025*	25	-16	1"	32.3	1.27	34.6	1.36	140	2,030	560	8,120	150	5.91	1,090	0.73	MF+M03400-16	OPF-16

KEY FEATURES

- Intermediate pressure rating between 1SC & 2SC
- Lightness and flexibility
- Halogen-Free hose line

APPLICATIONS & FLUIDS

- Hydraulics: medium pressure lines with installation constraints
- Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

100 °C, 212 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Two high tensile steel braids

COVER

Weather resistant synthetic rubber

APPLICABLE SPECS

Manuli® Design; DN 16 and 19: SAE 100 R17; ISO 11237 R17

TYPE APPROVALS

CU-TR; LR

manuli® HYDRAULICS

HARVESTER/17

INTEGRATED, RELIABLE HOSE ASSEMBLY



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H01056006*	6	-4	1/4"	10.2	0.40	12.0	0.47	210	3,040	840	12,180	50	1.97	185	0.12	MF+M03300-04	OPF-04
H01056008*	8	-5	5/16"	11.5	0.45	13.6	0.54	210	3,040	840	12,180	55	2.17	215	0.14	MF+M03300-05	OPF-05
H01056A10*	10	-6	3/8"	14.4	0.57	16.2	0.64	210	3,040	840	12,180	65	2.56	305	0.20	MF+M03400-06	OPF-06
H01056A12*	12	-8	1/2"	17.9	0.70	19.7	0.78	210	3,040	840	12,180	90	3.54	420	0.28	MF+M03400-08	OPF-08

KEY FEATURES

- Isobaric pressure rating
- Compact hose structures for installations in narrow spaces
- Halogen-Free hose line

APPLICATIONS & FLUIDS

- Hydraulics: medium pressure lines with installation constraints
- Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

100 °C, 212 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

One high tensile steel braid

COVER

Weather resistant synthetic rubber

APPLICABLE SPECS

SAE 100 R17; ISO 11237 R17

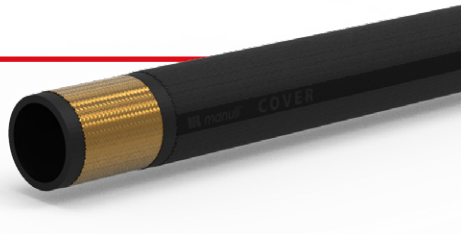
TYPE APPROVALS

CU-TR; LR

manuli® HYDRAULICS

COVER

INTEGRATED, RELIABLE HOSE ASSEMBLY



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H05002005*	5	-4	3/16"	-	-	13.2	0.52	210	3,040	840	12,180	75	2.95	220	0.15	MF+M00310-03	OPF-03
H05002006*	6	-5	1/4"	-	-	14.8	0.58	210	3,040	840	12,180	85	3.35	260	0.17	MF+M00310-04	OPF-04
H05002008*	8	-6	5/16"	-	-	17.1	0.67	157	2,270	630	9,130	100	3.94	305	0.20	MF+M00310-05	OPF-05
H05002010*	10	-8	13/32"	-	-	19.4	0.76	140	2,030	560	8,120	115	4.53	365	0.25	MF+M00310-06	OPF-06
H05002012*	12	-10	1/2"	-	-	23.3	0.92	122	1,760	490	7,100	140	5.51	495	0.33	MF+M00310-08	OPF-08
H05002016*	16	-12	5/8"	-	-	27.3	1.07	105	1,520	420	6,090	165	6.50	650	0.44	MF+M00310-10	
H05002022*	22	-16	7/8"	-	-	31.2	1.23	56	810	224	3,240	185	7.28	600	0.40		
H05002028*	28	-20	1.1/8"	-	-	38.0	1.50	43	620	175	2,530	229	9.02	780	0.52		
H05002035*	35	-24	1.3/8"	-	-	44.3	1.74	35	500	140	2,030	265	10.43	1,010	0.68		
H05002046*	46	-32	1.13/16"	-	-	56.1	2.21	24	340	98	1,420	335	13.19	1,400	0.94		

KEY FEATURES

- Robust design, general purpose hose
- Wear resistant cover

APPLICATIONS & FLUIDS

- Hydraulics: low-medium pressure lines, general purpose applications
- Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water, diesel fuel (up to 200°F/93°C)

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

100 °C, 212 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

One high tensile steel braid

COVER

One textile braid

APPLICABLE SPECS

SAE 100 R5

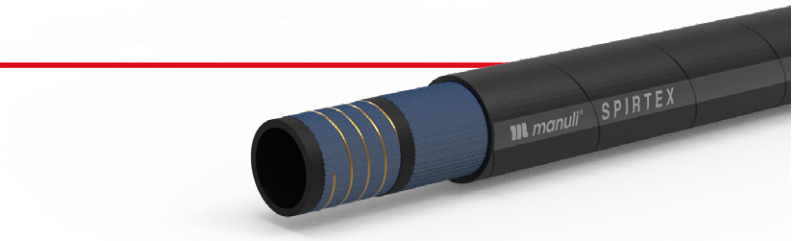
TYPE APPROVALS

CU-TR

manuli® HYDRAULICS

SPIRTEX

SAE 100 R4 SUCTION AND DELIVERY HOSE



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H80002019*	19	-12	3/4"	-	-	29.0	1.14	21	300	84	1,210	80	3.15	533	0.36	MF+M00321-12	
H80002025*	25	-16	1"	-	-	35.5	1.40	17	240	70	1,010	100	3.94	666	0.45	MF+M00930-16	
H80002031*	31	-20	1.1/4"	-	-	42.5	1.67	14	200	56	810	130	5.12	812	0.55	MF+M00920-20	
H80002038*	38	-24	1.1/2"	-	-	49.0	1.93	11	160	44	630	170	6.69	1,047	0.70	MF+M00910-24	
H80002051*	51	-32	2"	-	-	62.0	2.44	7	100	28	400	200	7.87	1,414	0.95	MF+M00910-32	
H80002063*	63	-40	2.1/2"	-	-	76.0	2.99	4	60	17	240	235	9.25	2,357	1.58	MF+M03400-40	
H80002076*	76	-48	3"	-	-	88.0	3.46	4	60	17	240	300	11.81	2,712	1.82	MF+M03400-48	
H80002089*	89	-56	3.1/2"	-	-	103.5	4.07	3	40	12	170	350	13.78	3,465	2.33	MF+M03400-56	
H80002102*	102	-64	4"	-	-	115.0	4.53	3	20	12	170	400	15.75	3,832	2.58	MF+M03400-64	

KEY FEATURES

- Hardwall hose used for the suction and delivery of hydraulic oils
- High robustness of hose structure
- Long lasting in severe applications
- Resistance to Vacuum
- Improved minimum bend radius
- Max. length: 60m

APPLICATIONS & FLUIDS

- Hydraulics: suction lines, return lines
- Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

100 °C, 212 °F

TUBE

NBR synthetic rubber

REINFORCEMENT

High tensile synthetic cord, helix body wire

COVER

Weather resistant synthetic rubber

APPLICABLE SPECS

SAE J517 100 R4, Manuli® Design; two-thirds the SAE J517 100R4 minimum bend radius

TYPE APPROVALS

CU-TR

manuli® HYDRAULICS

MULTITEX

INTEGRATED, RELIABLE HOSE ASSEMBLY



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H09067005*	5	-3	3/16"	0.0	0.00	11.0	0.43	35	500	140	2,030	35	1.38	90	0.06	MF+M00820-03	
H09067006*	6	-4	1/4"	0.0	0.00	12.6	0.50	30	430	120	1,740	45	1.77	115	0.08	MF+M00830-04	
H09067008*	8	-5	5/16"	0.0	0.00	14.1	0.56	30	430	120	1,740	65	2.56	140	0.09	MF+M00830-05	
H09067010*	10	-6	3/8"	0.0	0.00	15.8	0.62	30	430	120	1,740	75	2.95	160	0.11	MF+M00820-06	
H09067012*	12	-8	1/2"	0.0	0.00	19.4	0.76	30	430	120	1,740	90	3.54	210	0.14	MF+M00820-08	
H09073016*	16	-10	5/8"	0.0	0.00	23.0	0.91	30	430	120	1,740	115	4.53	290	0.19	MF+M00820-10	
H09073019*	19	-12	3/4"	0.0	0.00	26.0	1.02	30	430	120	1,740	140	5.51	325	0.22	MF+M00820-12	
H09073025*	25	-16	1"	0.0	0.00	32.0	1.26	30	430	120	1,740	150	5.91	400	0.27	MF+M00820-16	

KEY FEATURES

- High flexibility
- Wide range of fluid compatibility
- MF2000® Multifit Type couplability
- Push-On hose with MF2000® Push-Lock insert Type without ferrule

APPLICATIONS & FLUIDS

- Hydraulics: low pressure lines, return lines, drain lines
- Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

125 °C, 257 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

One high resistance textile braid

COVER

Weather resistant synthetic rubber

APPLICABLE SPECS

SAE 100 R6; EN 854 R6/1TE; ISO 4079 R6/1TE

manuli® HYDRAULICS

ASTRO/2

INTEGRATED, RELIABLE HOSE ASSEMBLY



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H09045006*	6	-4	1/4"	-	-	13.0	0.51	75	1,080	300	4,350	40	1.57	125	0.08	MF+M00830-04	
H09045008*	8	-5	5/16"	-	-	14.6	0.57	68	980	272	3,940	50	1.97	150	0.10	MF+M00830-05	
H09045010*	10	-6	3/8"	-	-	16.1	0.63	63	910	252	3,650	60	2.36	180	0.12	MF+M00820-06	
H09045012*	12	-8	1/2"	-	-	19.2	0.76	58	840	232	3,360	70	2.76	220	0.15	MF+M00820-08	
H09045016*	16	-10	5/8"	-	-	23.6	0.93	50	720	200	2,900	90	3.54	290	0.19	MF+M00820-10	
H09045019*	19	-12	3/4"	-	-	26.5	1.04	45	650	180	2,610	110	4.33	360	0.24	MF+M00820-12	
H09045025*	25	-16	1"	-	-	33.4	1.31	40	580	160	2,320	130	5.12	440	0.30	MF+M00820-16	
H09045032*	31	-20	1.1/4"	-	-	41.5	1.63	35	500	140	2,030	140	5.51	650	0.44	MF+M00820-20	

KEY FEATURES

- Wide range of fluid compatibility
- High flexibility of the hose structure

APPLICATIONS & FLUIDS

- Hydraulics: low pressure lines, return lines
- Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

125 °C, 257 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

One high resistance textile braid

COVER

Weather resistant synthetic rubber

APPLICABLE SPECS

EN 854 2TE; ISO 4079 2TE

TYPE APPROVALS

DNV-GL

manuli HYDRAULICS

ASTRO/3

INTEGRATED, RELIABLE HOSE ASSEMBLY



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H09046006*	6	-4	1/4"	-	-	14.2	0.56	145	2,100	580	8,410	45	1.77	150	0.10	MF+M00310-04	
H09046008*	8	-5	5/16"	-	-	16.6	0.65	130	1,880	520	7,540	55	2.17	210	0.14	MF+M00310-05	
H09046010*	10	-6	3/8"	-	-	18.2	0.72	110	1,590	440	6,380	70	2.76	230	0.15	MF+M00310-06	
H09046012*	12	-8	1/2"	-	-	21.5	0.85	93	1,340	372	5,390	85	3.35	290	0.19	MF+M00310-08	
H09046016*	16	-10	5/8"	-	-	25.6	1.01	80	1,160	320	4,640	105	4.13	395	0.27	MF+M00310-10	
H09046019*	19	-12	3/4"	-	-	28.8	1.13	70	1,010	280	4,060	130	5.12	455	0.31	MF+M00321-12	
H09046025*	25	-16	1"	-	-	35.4	1.39	55	790	220	3,190	150	5.91	580	0.39	MF+M00310-16	
H09046032*	31	-20	1.1/4"	-	-	42.5	1.67	45	650	180	2,610	190	7.48	740	0.50	MF+M00310-20	
H09046040*	38	-24	1.1/2"	-	-	49.4	1.94	40	580	160	2,320	240	9.45	920	0.62	MF+M00910-24	
H09046051*	51	-32	2"	-	-	62.2	2.45	33	470	132	1,910	300	11.81	1,140	0.77	MF+M00910-32	

KEY FEATURES

- Wide range of fluid compatibility
- High flexibility of the hose structure
- Low bend radii and compactness
- Exceeds performance of SAE100R3

APPLICATIONS & FLUIDS

- Hydraulics: low-medium pressure lines, return lines
- Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

125 °C, 257 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Two high resistance textile braids

COVER

Weather resistant synthetic rubber

APPLICABLE SPECS

EN 854 3TE; ISO 4079 3TE

TYPE APPROVALS

DNV-GL

GLOBAL STD. ● HI-GRADE ● PREMIUM

manuli HYDRAULICS

GOLDENISO/14 PILOT

COMPACTNESS AND FLEXIBILITY



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H01160005*	5	-3	3/16"	8.7	0.34	10.5	0.41	140	2,030	560	8,120	20	0.79	144	0.10	MN+M02400-03	MF+M03300-03
H01160006*	6	-4	1/4"	9.9	0.39	11.5	0.45	140	2,030	560	8,120	25	0.98	160	0.11	MN+M02400-04	MF+M03300-04
H01160008*	8	-5	5/16"	11.5	0.45	13.1	0.52	140	2,030	560	8,120	30	1.18	183	0.12	MN+M02400-05	MF+M03300-05
H01160010	10	-6	3/8"	13.2	0.52	14.8	0.58	140	2,030	560	8,120	40	1.57	220	0.15	MN+M02400-06	MF+M03300-06
H01160012*	12	-8	1/2"	16.2	0.64	18.0	0.71	140	2,030	560	8,120	50	1.97	277	0.19	MN+M02400-08	MF+M03300-08

KEY FEATURES

- Compact dimensions
- Very low bend radius, suitable for difficult installations
- High flexibility
- Flame retardant MSHA approved cover
- MiniFit special dedicated fittings, compact dimensions, designed for small bore 1WB hose

APPLICATIONS & FLUIDS

- Hydraulics: low pressure lines, pilot lines, auxiliary hydraulic systems
- Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

121 °C, 250 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

One high tensile steel braid

COVER

STRONG - TYPE “SC”
Synthetic rubber with high abrasion, ozone, weather and heat resistance and an extended operational temperature range

APPLICABLE SPECS

ISO 18752 Type C

TYPE APPROVALS

MSHA; CU-TR

manuli® HYDRAULICS

GOLDENISO/21 ANTIWEAR

OUTSTANDING ABRASION RESISTANCE



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H01125A05*	5	-3	3/16"	9.1	0.36	11.1	0.44	210	3,040	840	12,180	45	1.77	170	0.11	MF+M03300-03	OPF-03
H01125006*	6	-4	1/4"	10.2	0.40	12.0	0.47	210	3,040	840	12,180	50	1.97	180	0.12	MF+M03300-04	OPF-04
H01125008*	8	-5	5/16"	11.5	0.45	13.6	0.54	210	3,040	840	12,180	55	2.17	210	0.14	MF+M03300-05	OPF-05
H01125010*	10	-6	3/8"	14.4	0.57	16.2	0.64	210	3,040	840	12,180	65	2.56	300	0.20	MF+M03400-06	OPF-06
H01125012*	12	-8	1/2"	17.9	0.70	19.7	0.78	210	3,040	840	12,180	90	3.54	415	0.28	MF+M03400-08	OPF-08
H01125016*	16	-10	5/8"	22.2	0.87	24.0	0.94	210	3,040	840	12,180	100	3.94	620	0.42	MF+M03400-10	OPF-10
H01125019*	19	-12	3/4"	25.6	1.01	27.7	1.09	210	3,040	840	12,180	120	4.72	780	0.52	MF+M03400-12	OPF-12
H01125025*	25	-16	1"	33.0	1.30	35.2	1.39	210	3,040	840	12,180	150	5.91	1,120	0.75	MF+M03400-16	OPF-16

KEY FEATURES

- Extreme abrasion resistance
- Very low bend radius to suit restricted space installations
- High robust and compact hose structure compared to rated pressure
- Approved at 200.000 impulse cycles, at T=100°C (ISO 18752 grade A)
- High environmental agents resistance
- Vacuum resistance accordingly to SAE 100R4 requirements

APPLICATIONS & FLUIDS

- Medium and high pressure hydraulic lines with installation constraints, pilot lines, return, drain and suction lines
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

100 °C, 212 °F

TUBE

Synthetic rubber

REINFORCEMENT

One wire braid (DN 5-12). Two wire braid (DN 16-25)

COVER

S.H.A.R.C.
Synthetic rubber with very high abrasion, ozone and weather resistance

APPLICABLE SPECS

ISO 18752 grade A; SAE J517 Type 100 R17; ISO 11237-R17

TYPE APPROVALS

CU-TR; MSHA; FRAS; DNV-GL(MED)

manuli HYDRAULICS

GOLDENISO/28 ANTIWEAR

OUTSTANDING ABRASION RESISTANCE



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H01126006*	6	-4	1/4"	11.6	0.46	13.2	0.52	280	4,060	1,120	16,240	50	1.97	260	0.17	MF+M03400-04	OPF-04
H01126008*	8	-5	5/16"	12.9	0.51	14.5	0.57	280	4,060	1,120	16,240	55	2.17	280	0.19	MF+M03400-05	OPF-05
H01126010*	10	-6	3/8"	15.4	0.61	17.0	0.67	280	4,060	1,120	16,240	63	2.48	380	0.26	MF+M03400-06	OPF-06
H01126012*	12	-8	1/2"	18.5	0.73	20.3	0.80	280	4,060	1,120	16,240	80	3.15	495	0.33	MF+M03400-08	OPF-08
H01126016*	16	-10	5/8"	22.7	0.89	24.7	0.97	280	4,060	1,120	16,240	90	3.54	730	0.49	MF+M03400-10	OPF-10
H01126019*	19	-12	3/4"	27.1	1.07	29.3	1.15	280	4,060	1,120	16,240	120	4.72	1,060	0.71	MF+M03400-12	OPK-12

KEY FEATURES

- Extreme abrasion resistance
- Very low bend radius to suit restricted space installations
- High robust and compact hose structure compared to rated pressure
- Approved at 200.000 impulse cycles, at T=100°C (ISO 18752 grade A)
- High environmental agents resistance
- Vacuum resistance accordingly to SAE 100R4 requirements

APPLICATIONS & FLUIDS

- Medium and high pressure hydraulic lines with installation constraints, pilot lines, return, drain and suction lines
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

100 °C, 212 °F

TUBE

Synthetic rubber

REINFORCEMENT

Two wire braids

COVER

S.H.A.R.C.
Synthetic rubber with very high abrasion, ozone and weather resistance

APPLICABLE SPECS

ISO 18752 grade A; SAE J517 Type 100R19

TYPE APPROVALS

CU-TR; MSHA; FRAS; DNV-GL; DNV-GL(MED)

GOLDENISO/21 XTRAFLEX

COMPACTNESS AND FLEXIBILITY



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H10093031*	31	-20	1.1/4"	41.7	1.64	44.5	1.75	210	3,040	840	12,180	210	8.27	2,071	1.39	MF+M00920-20	OPK-20
H10093038*	38	-24	1.1/2"	48.9	1.93	52.1	2.05	210	3,040	840	12,180	260	10.24	2,989	2.01	IP+M01500-24	SP+M05400-24
H10093051*	51	-32	2"	63.2	2.49	66.8	2.63	210	3,040	840	12,180	330	12.99	4,311	2.90	IP+M01500-32	SP+M05400-32

KEY FEATURES

- Bend radius which exceeds the standard requirements by -50%
- Good flexibility in the whole temperature range
- Easy mounting in any installation
- High impulse resistance according to ISO 18752 Grade D (with skive / double-skive fittings)
- Weight saving vs traditional R12 hose construction, despite the higher working pressure of the GoldenISO Xtraflex range
- No-skive fitting solution is available
- Isobaric pressure rating for easy selection and product management

APPLICATIONS & FLUIDS

- Medium pressure hydraulic lines for general hydraulics
- Return lines of hydraulic systems
- Applications with installation constraints (short assemblies, compact spaces, low bend radii, etc.)
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-46 °C, -50 °F

121 °C, 250 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

4 high tensile steel spirals

COVER

STRONG - TYPE “SC”
Synthetic rubber with high abrasion, ozone, weather and heat resistance and an extended operational temperature range

APPLICABLE SPECS

ISO 18752-C/D; JIS K6349-3

TYPE APPROVALS

CU-TR; MSHA; FRAS; ABS; BV; LR;DNV-GL(MED); NK; B

manuli HYDRAULICS

GOLDENISO/28 XTRAFLEX

COMPACTNESS AND FLEXIBILITY



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H10095010*	10	-6	3/8"	16.7	0.66	18.9	0.74	280	4,060	1,120	16,240	65	2.56	520	0.35	MF+M00910-06	OPK-06
H10095012*	12	-8	1/2"	19.6	0.77	21.8	0.86	280	4,060	1,120	16,240	90	3.54	650	0.44	MF+M00910-08	OPK-08
H10095016*	16	-10	5/8"	23.5	0.93	25.7	1.01	280	4,060	1,120	16,240	100	3.94	934	0.63	MF+M00910-10	OPK-10
H10095019*	19	-12	3/4"	26.9	1.06	29.3	1.15	280	4,060	1,120	16,240	120	4.72	1,040	0.70	MF+M00920-12	OPK-12
H10095025*	25	-16	1"	34.1	1.34	36.5	1.44	280	4,060	1,120	16,240	150	5.91	1,530	1.03	MF+M00930-16	OPK-16
H10095031*	31	-20	1.1/4"	41.7	1.64	44.5	1.75	280	4,060	1,120	16,240	210	8.27	2,160	1.45	MF+M00920-20	OPK-20
H10095038*	38	-24	1.1/2"	48.9	1.93	52.1	2.05	280	4,060	1,120	16,240	280	11.02	2,994	2.01	IP+M01500-24	SP+M05400-24
H10095051*	51	-32	2"	63.9	2.52	67.5	2.66	280	4,060	1,120	16,240	350	13.78	4,633	3.11	IP+M01500-32	SP+M05400-32

KEY FEATURES

- Bend radius which exceeds the standard requirements by - 30% to -50%
- Good flexibility in the whole temperature range
- Easy mounting in any installation
- High impulse resistance according to ISO 18752 Grade D (with skive / double-skive fittings)
- Weight saving of 20% vs traditional R12 hose construction
- No-skive fitting solution is available
- Isobaric pressure rating for easy selection and product management

APPLICATIONS & FLUIDS

- High pressure power lines for general hydraulics
- Applications with installation constraints (short assemblies, compact spaces, low bend radii, etc.)
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-46 °C, -50 °F

121 °C, 250 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

4 high tensile steel spirals

COVER

STRONG - TYPE “SC”
Synthetic rubber with high abrasion, ozone, weather and heat resistance and an extended operational temperature range

APPLICABLE SPECS

ISO 18752-C/D; JIS K6349-3

TYPE APPROVALS

CU-TR; MSHA; FRAS; CCS; ABS; BV; LR;DNV-GL(MED); NK; B

manuli HYDRAULICS

GOLDENISO/35 XTRAFLEX

COMPACTNESS AND FLEXIBILITY



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H10096010*	10	-6	3/8"	16.7	0.66	18.9	0.74	350	5,070	1,400	20,300	80	3.15	530	0.36	MF+M00910-06	OPK-06
H10096012*	12	-8	1/2"	19.6	0.77	21.8	0.86	350	5,070	1,400	20,300	90	3.54	660	0.44	MF+M00910-08	OPK-08
H10096016*	16	-10	5/8"	23.5	0.93	25.7	1.01	350	5,070	1,400	20,300	100	3.94	934	0.63	MF+M00910-10	OPK-10
H10096019*	19	-12	3/4"	27.5	1.08	29.9	1.18	350	5,070	1,400	20,300	120	4.72	1,220	0.82	IP+M01500-12	SP+M05400-12
H10096025*	25	-16	1"	34.6	1.36	37.0	1.46	350	5,070	1,400	20,300	150	5.91	1,800	1.21	IP+M01500-16	SP+M05400-16
H10096031*	31	-20	1.1/4"	42.1	1.66	44.9	1.77	350	5,070	1,400	20,300	230	9.06	2,340	1.57	IP+M01500-20	SP+M05400-20
H10096038*	38	-24	1.1/2"	52.9	2.08	56.1	2.21	350	5,070	1,400	20,300	300	11.81	4,165	2.80	IP+M01600-24	SP+M05500-24
H10096051*	51	-32	2"	66.8	2.63	70.4	2.77	350	5,070	1,400	20,300	360	14.17	6,161	4.14	IP+M01800-32	SP+M05500-32

KEY FEATURES

- Bend radius which exceeds the standard requirements by - 30% to -50%
- Good flexibility in the whole temperature range
- Easy mounting in any installation
- High impulse resistance according to ISO 18752 requirements
- Weight saving of 20% vs traditional R15 hose construction
- No-skive fitting solution is available
- Isobaric pressure rating for easy selection and product management

APPLICATIONS & FLUIDS

- High pressure power lines for general hydraulics
- Applications with installation constraints (short assemblies, compact spaces, low bend radii, etc.)
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-46 °C, -50 °F

121 °C, 250 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Four high tensile steel spirals (DN 10-31). Six high tensile steel spirals (DN 38, 51).

COVER

STRONG - TYPE “SC”
Synthetic rubber with high abrasion, ozone, weather and heat resistance and an extended operational temperature range

APPLICABLE SPECS

ISO 18752-C/D, JIS K6349-3, meets and exceed EN 856-R13 & ISO 3862-R13 performance

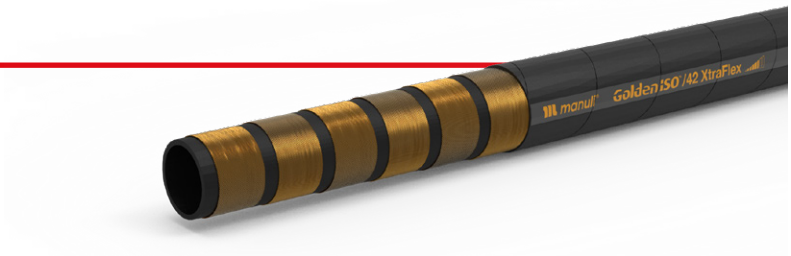
TYPE APPROVALS

DNV-GL; CU-TR; MSHA; FRAS; B; ABS; BV; LR; RINA; DNV-GL(MED); MA

manuli HYDRAULICS

GOLDENISO/42 XTRAFLEX

COMPACTNESS AND FLEXIBILITY



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H10097006*	6	-4	1/48"	11.3	0.44	13.1	0.52	420	6,090	1,680	24,360	45	1.77	284	0.19	MF+M00120-04	
H10097010*	10	-6	3/8"	17.6	0.69	20.0	0.79	420	6,090	1,680	24,360	100	3.94	688	0.46	MF+M00910-06	
H10097012*	12	-8	1/2"	20.3	0.80	22.7	0.89	420	6,090	1,680	24,360	120	4.72	807	0.54	MF+M00910-08	
H10097016*	16	-10	5/8"	23.9	0.94	26.4	1.04	420	6,090	1,680	24,360	140	5.51	989	0.66	IP+M01500-10	SP+M05400-10
H10097019*	19	-12	3/4"	27.7	1.09	30.2	1.19	420	6,090	1,680	24,360	150	5.91	1,285	0.86	IP+M01500-12	SP+M05400-12
H10097025*	25	-16	1"	34.8	1.37	37.3	1.47	420	6,090	1,680	24,360	210	8.27	2,007	1.35	IP+M01500-16	SP+M05400-16
H10097031*	31	-20	1.1/4"	46.3	1.82	49.5	1.95	420	6,090	1,680	24,360	260	10.24	3,663	2.46	IP+M01600-20	SP+M05500-20
H10097038*	38	-24	1.1/2"	53.2	2.09	56.4	2.22	420	6,090	1,680	24,360	310	12.20	4,450	2.99	IP+M01600-24	SPGX+M05500-24GX
H10097051*	51	-32	2"	68.9	2.71	72.4	2.85	420	6,090	1,680	24,360	500	19.69	7,310	4.91	IS+M02700-32	SPGX+M05500-32GX

KEY FEATURES

- Bend radius which exceeds the standard requirements by - 30% to -50%
- Good flexibility in the whole temperature range
- Easy mounting in any installation
- High impulse resistance according to ISO 18752 requirements
- Weight saving of 20% vs traditional R15 hose construction
- No-skive fitting solution is available
- Isobaric pressure rating for easy selection and product management

APPLICATIONS & FLUIDS

- High pressure power lines for general hydraulics
- Heavy duty power lines
- Applications with installation constraints (short assemblies, compact spaces, low bend radii, etc.)
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-46 °C, -50 °F

121 °C, 250 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Two high tensile steel wire braids (DN 6). Four high tensile steel spirals (DN 10-25). Six high tensile steel spirals (DN 31-51).

COVER

STRONG - TYPE “SC”
Synthetic rubber with high abrasion, ozone, weather and heat resistance and an extended operational temperature range

APPLICABLE SPECS

ISO 18752-C (Grade C "Plus" approved 1 Mil impulse cycles with Interlock Plus fittings), meets and exceed ISO 3862-R15 performance

TYPE APPROVALS

CU-TR; MSHA; FRAS; B; ABS; BV; LR; RINA; DNV-GL(MED); DNV-GL; MA

REMARKS

- *Size -20 is qualified to reduced bend radius with Interlock Plus fitting solution*
  -20: MBR = 210mm

manuli® HYDRAULICS

GOLDENISO/38 LONGLIFE

HIGH FATIGUE RESISTANCE



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H10098006*	6	-4	1/4"	11.3	0.44	13.1	0.52	380	5,510	1,680	24,360	45	1.77	284	0.19	MF+M00120-04	
H10098008*	8	-5	5/16"	12.9	0.51	14.7	0.58	380	5,510	1,680	24,360	55	2.17	318	0.21	MF+M00120-05	
H10098010*	10	-6	3/8"	15.5	0.61	17.1	0.67	380	5,510	1,680	24,360	65	2.56	440	0.30	MF+M00120-06	
H10098012*	12	-8	1/2"	18.6	0.73	20.6	0.81	380	5,510	1,680	24,360	80	3.15	573	0.39	MF+M00120-08	
H10098019*	19	-12	3/4"	27.7	1.09	32.0	1.26	380	5,510	1,680	24,360	170	6.69	1,410	0.95	IP+M01500-12	
H10098025*	25	-16	1"	34.8	1.37	38.1	1.50	380	5,510	1,680	24,360	220	8.66	1,964	1.32	IP+M01500-16	
H10098031*	31	-20	1.1/4"	46.3	1.82	49.5	1.95	380	5,510	1,680	24,360	267	10.51	3,663	2.46	IP+M01600-20	

KEY FEATURES

- Designed for original equipment
- Long-term mission profile in severe applications
- Over standard pressure rating
- High impulse resistance exceeding the ISO 18752 requirements
- Superior abrasion resistance
- High ozone and weather resistance
- Flame retardant and antistatic properties of the cover
- Wide compatibility with hydraulic fluids, mineral and biodegradable oils
- Low bend radius, better than the standard requirements
- Interlock-Plus easy mounting system for a very high-level robustness
- Isobaric pressure rating for easy selection and product management

APPLICATIONS & FLUIDS

- Heavy duty pressure lines, hydrostatic transmissions, heavy duty earth moving equipment, hydraulic presses, drilling applications, injection moulding machines, specific installations with severe abrasion conditions and/or harsh environmental conditions, marine applications, underground and open pit mining
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-46 °C, -50 °F

121 °C, 250 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Two high tensile steel wire braids (DN 6-12), four high tensile steel wire spirals (DN 19 & 25), six high tensile steel wire spirals (DN 31)

COVER

STRONG - TYPE “SC”
Synthetic rubber with high abrasion, ozone, weather and heat resistance and an extended operational temperature range

APPLICABLE SPECS

Manuli® Design: DN 6 to 12 exceeds ISO 18752-C extension; DN 19 to 31 exceeds SAE J517 Type 100R13; ISO 3862 R13; ISO 18752-C-D extension

TYPE APPROVALS

CU-TR; MSHA; FRAS

manuli® HYDRAULICS

GOLDENISO/45 LONGLIFE

HIGH FATIGUE RESISTANCE



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H10089006*	6	-4	1/4"	14.7	0.58	17.1	0.67	460	6,670	1,840	26,680	125	4.92	567	0.38	IP+M01500-04	
H10089016*	16	-10	5/8"	25.5	1.00	28.5	1.12	460	6,670	1,840	26,680	250	9.84	1,290	0.87	IP+M01500-10	
H10089019*	19	-12	3/4"	28.4	1.12	32.0	1.26	460	6,670	1,840	26,680	280	11.02	1,530	1.03	IP+M01500-12	
H10089025*	25	-16	1"	35.4	1.39	38.2	1.50	460	6,670	1,840	26,680	340	13.39	2,150	1.44	IP+M01500-16	
H10089031*	31	-20	1.1/4"	46.3	1.82	49.5	1.95	450	6,520	1,800	26,100	420	16.54	3,790	2.55	IP+M01800-20	
H10089038*	38	-24	1.1/2"	54.2	2.13	58.0	2.28	450	6,520	1,800	26,100	450	17.72	5,002	3.36	IP+M01600-24	

KEY FEATURES

- Designed for original equipment
- Long-term mission profile in severe applications
- Over standard pressure rating
- High impulse resistance exceeding the ISO 18752 requirements
- Superior abrasion resistance
- High ozone and weather resistance
- Flame retardant and antistatic properties of the cover
- Wide compatibility with hydraulic fluids, mineral and biodegradable oils
- Low bend radius, better than the standard requirements
- Interlock-Plus easy mounting system for a very high-level robustness
- Isobaric pressure rating for easy selection and product management

APPLICATIONS & FLUIDS

- Heavy duty pressure lines, hydrostatic transmissions, heavy duty earth moving equipment, hydraulic presses, drilling applications, injection moulding machines, specific installations with severe abrasion conditions and/or harsh environmental conditions, marine applications, underground and open pit mining
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

121 °C, 250 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Four high tensile steel wire spirals (DN 6-25). Six high tensile steel wire spirals (DN 31-38)

COVER

STRONG - TYPE “SC”
Synthetic rubber with high abrasion, ozone, weather and heat resistance and an extended operational temperature range

APPLICABLE SPECS

Manuli® Design exceeds SAE J517 Type 100R15;
ISO 3862 R15; ISO 18752-D extension

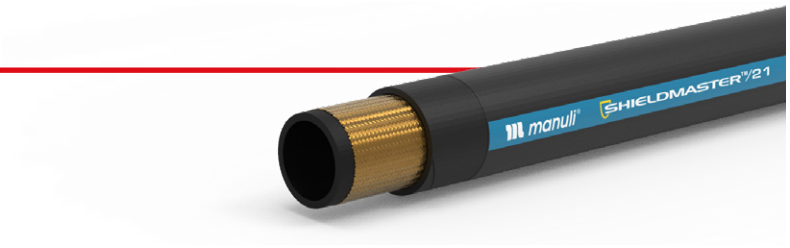
TYPE APPROVALS

CU-TR; MSHA; FRAS

manuli HYDRAULICS

SHIELDMASTER/21

OUTSTANDING WEAR RESISTANCE



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H01154006*	6	-4	1/4"	10,2	0,40	12,2	0,48	210	3040	840	12180	50	1,97	188	0,13	MF+M00120-04	OPF-04
H01154008*	8	-5	5/16"	11,5	0,45	13,6	0,54	210	3040	840	12180	55	2,17	212	0,14	MF+M00120-05	OPF-05
H01154010*	10	-6	3/8"	14,4	0,57	16,0	0,63	210	3040	840	12180	65	2,56	306	0,21	MF+M00120-06	OPF-06
H01154012*	12	-8	1/2"	18,1	0,71	20,1	0,79	210	3040	840	12180	90	3,54	444	0,30	MF+M00120-08	OPK-08
H01154016*	16	-10	5/8"	22,2	0,87	24,2	0,95	210	3040	840	12180	100	3,94	624	0,42	MF+M00120-10	OPF-10
H01154019*	19	-12	3/4"	25.6	1.01	27.7	1.09	210	3040	840	12180	120	4.72	771	0.52	MF+M00120-12	OPF-12
H01154025*	25	-16	1"	33.0	1.30	34.8	1.37	210	3040	840	12180	150	5.91	1,193	0.80	MF+M00130-16	OPF-16

KEY FEATURES

- Outstanding abrasion and ozone resistance
- Compact and light structure
- Very low bend radius makes this product suitable for difficult installations
- Easy assembling and mounting operations (no protection sleeves required)
- Isobaric pressure rating
- Suitable for very cold environments

APPLICATIONS & FLUIDS

- Low, medium pressure hydraulic lines
- High resistance to abrasion conditions, including rubbing amongst hoses in bunches, alternative to spring guards, ease of cleaning in dusty environments
- For severe environmental conditions, long resistance to ozone and weathering, cold temperatures, dirty industrial environments
- Skive and no-skive fitting solutions
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-46 °C, -50 °F

100 °C, 212 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

One high tensile wire braid (DN 6 to 12), two high tensile wire braids (DN 16 to 25)

COVER

SHIELD
Composite bi-layer structure with outstanding abrasion and ozone resistance

APPLICABLE SPECS

ISO 18752-B

TYPE APPROVALS

MSHA, FRAS (requested); CU-TR

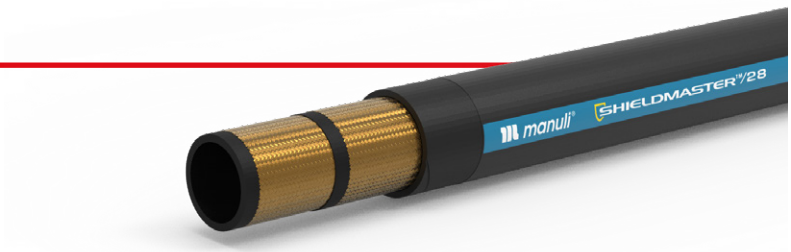
REMARKS

- *Applications with material projections or winding on low bend radius pulley systems should be field tested before use; high abrasion resistant rubber cover hoses are appropriate in most cases*

manuli HYDRAULICS

SHIELDMASTER/28

OUTSTANDING WEAR RESISTANCE



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H01155006*	6	-4	1/4”	11.6	0.46	13.6	0.54	280	4,060	1,120	16,240	50	1.97	272	0.18	MF+M00120-04	OPF-04
H01155008*	8	-5	5/16”	12.9	0.51	14.9	0.59	280	4,060	1,120	16,240	55	2.17	299	0.20	MF+M00120-05	OPF-05
H01155010*	10	-6	3/8”	15.4	0.61	17.4	0.69	280	4,060	1,120	16,240	63	2.48	397	0.27	MF+M00120-06	OPF-06
H01155012*	12	-8	1/2”	18.5	0.73	20.5	0.81	280	4,060	1,120	16,240	80	3.15	507	0.34	MF+M00120-08	OPK-08
H01155016*	16	-10	5/8””	22.7	0.89	24.7	0.97	280	4,060	1,120	16,240	90	3.54	731	0.49	MF+M00120-10	OPK-10
H01155019*	19	-12	3/4”	27.1	1.07	29.3	1.15	280	4,060	1,120	16,240	120	4.72	1,058	0.71	MF+M00120-12	OPK-12
H01155025*	25	-16	1”	34.1	1.34	36.5	1.44	280	4,060	1,120	16,240	150	5.91	1,536	1.03	MF+M00930-16	OPK-16
H01155031*	31	-20	1.1/4”	41.7	1.64	44.5	1.75	280	4,060	1,120	16,240	210	8.27	2,171	1.46	MF+M00920-20	OPK-20

KEY FEATURES

- Outstanding abrasion and ozone resistance
- Compact and light structure
- Very low bend radius makes this product suitable for difficult installations
- Easy assembling and mounting operations (no protection sleeves required)
- Isobaric pressure rating
- Suitable for very cold environments

APPLICATIONS & FLUIDS

- Medium and high pressure hydraulic lines
- High resistance to abrasion conditions, including rubbing amongst hoses in bunches, alternative to spring guards, ease of cleaning in dusty environments
- For severe environmental conditions, long resistance to ozone and weathering, cold temperatures, dirty industrial environments
- Skive and no-skive fitting solutions
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-46 °C, -50 °F

100 °C, 212 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Two high tensile steel braids (DN 6-19); Four high tensile steel spirals (DN 25-31)

COVER

SHIELD
Composite bi-layer structure with outstanding abrasion and ozone resistance

APPLICABLE SPECS

ISO 18752-B

TYPE APPROVALS

MSHA, FRAS (requested); CU-TR

REMARKS

- *Applications with material projections or winding on low bend radius pulley systems should be field tested before use; high abrasion resistant rubber cover hoses are appropriate in most cases*

manuli HYDRAULICS

SHIELDMASTER/35

OUTSTANDING WEAR RESISTANCE



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H10119006*	6	-4	1/4”	11.3	0.44	13.1	0.52	350	5,070	1,400	20,300	45	1.77	288	0.19	MF+M00120-04	OPF-04
H10119008*	8	-5	5/16”	12.9	0.51	14.9	0.59	350	5,070	1,400	20,300	55	2.17	330	0.22	MF+M00120-05	OPF-05
H10119010*	10	-6	3/8”	15.0	0.59	16.8	0.66	350	5,070	1,400	20,300	65	2.56	393	0.26	MF+M00120-06	OPF-06
H10119012*	12	-8	1/2”	18.6	0.73	20.4	0.80	350	5,070	1,400	20,300	80	3.15	556	0.37	MF+M00120-08	OPK-08
H10119016*	16	-10	5/8”	23.5	0.93	25.9	1.02	350	5,070	1,400	20,300	100	3.94	964	0.65	MF+M00910-10	OPK-10
H10119019*	19	-12	3/4”	27.5	1.08	29.9	1.18	350	5,070	1,400	20,300	120	4.72	1,229	0.83	IP+M01500-12	SP+M05400-12
H10119025*	25	-16	1”	34.6	1.36	37.0	1.46	350	5,070	1,400	20,300	150	5.91	1,795	1.21	IP+M01500-16	SP+M05400-16
H10119031*	31	-20	1.1/4”	42.1	1.66	44.9	1.77	350	5,070	1,400	20,300	230	9.06	2,369	1.59	IP+M01500-20	SP+M05400-20
H10119038*	38	-24	1.1/2”	51.2	2.02	56.1	2.21	350	5,070	1,400	20,300	300	11.81	4,214	2.83	IP+M01600-24	SP+M05500-24
H10119051*	51	-32	2”	66.8	2.62	70.4	2.77	350	5,070	1,400	20,300	360	14.17	6,205	4.17	IP+M01800-32	SP+M05500-32

KEY FEATURES

- Outstanding abrasion and ozone resistance
- Compact and light structure
- Very low bend radius makes this product suitable for difficult installations
- Easy assembling and mounting operations (no protection sleeves required)
- Isobaric pressure rating
- Suitable for very cold environments

APPLICATIONS & FLUIDS

- High pressure hydraulic lines
- High resistance to abrasion conditions, including rubbing amongst hoses in bunches, alternative to spring guards, ease of cleaning in dusty environments
- For severe environmental conditions, long resistance to ozone and weathering, cold temperatures, dirty industrial environments
- Skive and no-skive fitting solutions
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-46 °C, -50 °F

100 °C, 212 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Two high tensile steel braids (DN 6-12); Four high tensile steel spirals (DN 16-31); Six high tensile steel spirals (DN 38-51)

COVER

SHIELD
Composite bi-layer structure with outstanding abrasion and ozone resistance

APPLICABLE SPECS

ISO 18752-B

TYPE APPROVALS

MSHA, FRAS (requested); CU-TR

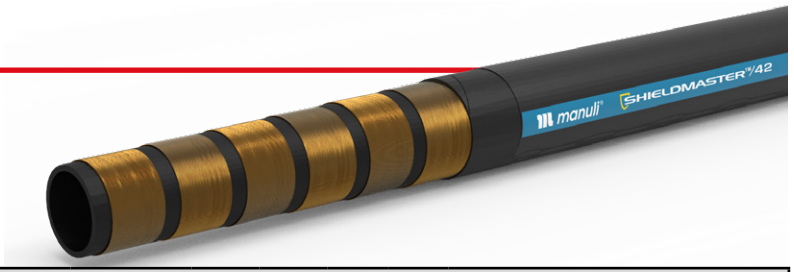
REMARKS

- *Applications with material projections or winding on low bend radius pulley systems should be field tested before use; high abrasion resistant rubber cover hoses are appropriate in most cases*

manuli HYDRAULICS

SHIELDMASTER/42

OUTSTANDING WEAR RESISTANCE



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H10120006*	6	-4	1/4"	11,3	0,44	13,3	0,52	420	6090	1680	24360	45	1,77	294	0,20	MF+M00120-04	OPF-04
H10120010*	10	-6	3/8"	17,6	0,69	20,0	0,79	420	6090	1680	24360	100	3,94	699	0,47	MF+M00910-08	OPK-08
H10120012*	12	-8	1/2"	20,3	0,80	22,7	0,89	420	6090	1680	24360	120	4,72	808	0,54	MF+M00910-08	OPK-08
H10120019*	19	-12	3/4"	27,7	1,09	30,2	1,19	420	6090	1680	24360	150	5,91	1,307	0,88	IP+M01500-12	SP+M05400-12
H10120025*	25	-16	1"	35,0	1,38	37,5	1,48	420	6090	1680	24360	210	8,27	2,031	1,36	IP+M01500-16	SP+M05400-16
H10120031*	31	-20	1.1/4"	44,7	1,76	49,5	1,95	420	6090	1680	24360	260	10,24	3,701	2,49	IP+M01600-20	SP+M05500-20
H10120038*	38	-24	1.1/2"	53.2	2.09	56.4	2.22	420	6090	1680	24360	310	12.20	4,498	3.01	IP+M01600-24	SPGX+M05500-24GX
H10120051*	51	-32	2"	68.9	2.71	72.4	2.85	420	6090	1680	24360	500	19.69	7,388	4.96	IS+M02700-32	

KEY FEATURES

- Outstanding abrasion and ozone resistance
- Compact and light structure
- Very low bend radius makes this product suitable for difficult installations
- Easy assembling and mounting operations (no protection sleeves required)
- Isobaric pressure rating
- Suitable for very cold environments

APPLICATIONS & FLUIDS

- High pressure hydraulic lines
- Heavy duty power lines
- High resistance to abrasion conditions, including rubbing amongst hoses in bunches, alternative to spring guards, ease of cleaning in dusty environments
- For severe environmental conditions, long resistance to ozone and weathering, cold temperatures, dirty industrial environments
- Skive and no-skive fitting solutions
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-46 °C, -50 °F

100 °C, 212 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Two high tensile steel braids (DN 6); Four high tensile steel spirals (DN 10-25); Six high tensile steel spirals (DN 31-51)

COVER

SHIELD
Composite bi-layer structure with outstanding abrasion and ozone resistance

APPLICABLE SPECS

ISO 18752-B

TYPE APPROVALS

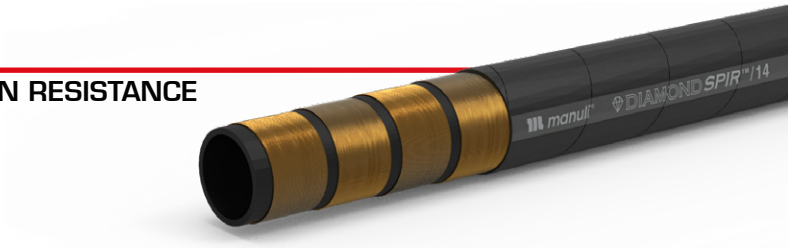
MSHA, FRAS (requested); CU-TR

REMARKS

- *Applications with material projections or winding on low bend radius pulley systems should be field tested before use; high abrasion resistant rubber cover hoses are appropriate in most cases*

DIAMONDSPIR/14

HIGH FLOW RATES, OUTSTANDING ABRASION RESISTANCE



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H10104076*	76	-48	3”	87.8	3.46	92.2	3.63	140	2,030	560	8,120	700	27.56	5,900	3.96	IP+M01500-48	

KEY FEATURES

- Extreme abrasion resistance
- High ozone and weather resistance
- Flame retardant and antistatic cover
- Superior pressure rating
- Structure robustness for tough handling
- Interlock robust fitting technology

APPLICATIONS & FLUIDS

- Medium pressure hydraulic lines with high flow rates, mine hydraulic return lines, large equipment hydraulics
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-46 °C, -50 °F

121 °C, 250 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Four high tensile wire spirals

COVER

STRONG - TYPE “SC”
Synthetic rubber with high abrasion, ozone, weather and heat resistance and an extended operational temperature range

APPLICABLE SPECS

Manuli® Design, ISO 18752-C Ext.

TYPE APPROVALS

CU-TR; MSHA; CCS; DNV-GL; ABS; FRAS

DIAMONDSPIR/17

HIGH FLOW RATES, OUTSTANDING ABRASION RESISTANCE



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H10104076*	76	-48	3”	89.0	3.50	92.1	3.63	170	2,460	700	10,150	600	25.98	6,060	4.07	IP+M01500-48	
H10104089*	89	-56	3.1/2”	109.7	4.32	115.6	4.55	170	2,460	800	11,600	1,200	47.24	12,735	8.56	IS+M02610-56	

KEY FEATURES

- Extreme abrasion resistance
- High ozone and weather resistance
- Flame retardant and antistatic cover
- Superior pressure rating
- Structure robustness for tough handling
- Interlock robust fitting technology

APPLICATIONS & FLUIDS

- Medium pressure hydraulic lines with high flow rates, mine hydraulic return lines, large equipment hydraulics
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-46 °C, -50 °F

121 °C, 250 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Four or six high tensile wire spirals

COVER

STRONG - TYPE “SC”
Synthetic rubber with high abrasion, ozone, weather and heat resistance and an extended operational temperature range

APPLICABLE SPECS

Manuli® Design, ISO 18752-C Ext.

TYPE APPROVALS

CU-TR; MSHA;

DIAMONDSPIR/21

VERY HIGH HYDRAULIC POWER TRANSMISSION



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H10102063*	63	-40	2.1/2"	77.5	3.05	81.5	3.21	210	3,040	840	12,180	700	27.56	5,890	3.96	IP+M01500-40	
H10102076*	76	-48	3"	990.8	3.57	94.6	3.72	210	3,040	840	12,180	900	35.43	7,910	5.32	IP+M01810-48	

KEY FEATURES

- Very high flow rates in high pressure hydraulics
- Extremely robust hose structure
- Compact hose dimensions
- Approved with severe fatigue tests
- Superior abrasion resistance
- High ozone and weather resistance
- Flame retardant (MSHA) and antistatic properties
- Biological and mineral oils compatibility
- Crimped Interlock Plus fitting structures

APPLICATIONS & FLUIDS

- Hydraulics: heavy duty power lines, hydrostatic transmissions in severe environmental conditions, specific installations with tough abrasion conditions, off-shore applications, underground and open pit mining
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-46 °C, -50 °F

121 °C, 250 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Four to six high tensile wire spirals

COVER

STRONG - TYPE “SC”
Synthetic rubber with high abrasion, ozone, weather and heat resistance and an extended operational temperature range

APPLICABLE SPECS

Manuli® Design, ISO 18752-C Ext.

TYPE APPROVALS

CU-TR; MSHA; MA; CCS; ABS; DNV-GL

manuli® HYDRAULICS

DIAMONDSPIR/35

VERY HIGH HYDRAULIC POWER TRANSMISSION



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H10103063*	63	-40	2.1/2"	80.6	3.17	84.8	3.34	350	5,070	1,400	20,300	800	31.50	8,105	5.45	IP+M01810-40	
H10103076*	76	-48	3"	97.9	3.85	101.9	4.01	350	5,070	1,400	20,300	1,000	39.37	12,249	8.23	IS+M02700-48	IS+M02800-48

KEY FEATURES

- Very high flow rates in high pressure hydraulics
- Extremely robust hose structure
- Compact hose dimensions
- Approved with severe fatigue tests
- Superior abrasion resistance
- High ozone and weather resistance
- Flame retardant (MSHA) and antistatic properties
- Biological and mineral oils compatibility
- Crimped Interlock Plus & Interlock Super fitting structures

APPLICATIONS & FLUIDS

- Hydraulics: heavy duty power lines, hydrostatic transmissions in severe environmental conditions, specific installations with tough abrasion conditions, off-shore applications, underground and open pit mining
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-46 °C, -50 °F

121 °C, 250 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Six to eight high tensile wire spirals

COVER

STRONG - TYPE “SC”
Synthetic rubber with high abrasion, ozone, weather and heat resistance and an extended operational temperature range

APPLICABLE SPECS

Manuli® Design, ISO 18752-C Ext.

TYPE APPROVALS

CU-TR; MSHA; MA; CCS;ABS; DNV-GL; FRAS

manuli® HYDRAULICS

MASTERTEX

LOW PRESSURE, HIGH TEMPERATURE HOSE



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H09069006*	6	-4	1/4”			12.6	0.50	30	430	120	1,740	45	1.77	115	0.08	MF+M00830-04	
H09069010*	10	-6	3/8”			15.8	0.62	30	430	120	1,740	75	2.95	160	0.11	MF+M00820-06	
H09069012*	12	-8	1/2”			19.4	0.76	30	430	120	1,740	90	3.54	210	0.14	MF+M00820-08	
H09069016*	16	-10	5/8”			23.0	0.91	30	430	120	1,740	115	4.53	285	0.19	MF+M00820-10	

KEY FEATURES

- Long term aging resistance
- Suitability for high temperature applications
- High flexibility
- Wide range of fluid compatibility
- MF2000 Multifit type compatibility

APPLICATIONS & FLUIDS

- Hydraulics: low pressure lines, return lines, drain lines with high temperature fluids
- Mineral oils, synthetic base oils (HS), vegetable and rape seed oils, glycol and polyglycol based oils, oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

135 °C, 275 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

One high resistance textile braid

COVER

Weather and high heat resistant synthetic rubber

APPLICABLE SPECS

Exceeds SAE 100 R6; ISO 4079 R6/1TE

manuli® HYDRAULICS

ROCKMASTER/1SC

ABRASION, WEATHER & HEAT RESISTANCE



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H01108006*	6	-4	1/4"	10.2	0.40	12.0	0.47	260	3,770	1,050	15,220	50	1.97	180	0.12	MF+M03300-04	MF+M00120-04
H01108008*	8	-5	5/16"	11.5	0.45	13.6	0.54	250	3,620	1,000	14,500	55	2.17	210	0.14	MF+M03300-05	MF+M00120-05
H01108010*	10	-6	3/8"	13.6	0.54	15.5	0.61	225	3,260	900	13,050	60	2.36	255	0.17	MF+M03300-06	MF+M00120-06
H01108012*	12	-8	1/2"	17.3	0.68	19.1	0.75	190	2,750	760	11,020	70	2.76	355	0.24	MF+M03300-08	MF+M00120-08
H01108016*	16	-10	5/8"	20.6	0.81	22.4	0.88	150	2,170	600	8,700	90	3.54	430	0.29	MF+M03400-10	MF+M00820-10
H01108019*	19	-12	3/4"	23.9	0.94	25.9	1.02	150	2,170	600	8,700	100	3.94	520	0.35	MF+M03400-12	MF+M00820-12
H01108025*	25	-16	1"	31.3	1.23	33.1	1.30	110	1,590	440	6,380	160	6.30	730	0.49	MF+M03400-16	MF+M00820-16
H01108031*	31	-20	1.1/4"	38.4	1.51	40.9	1.61	75	1,080	300	4,350	210	8.27	1,040	0.70	MF+M03400-20	MF+M00820-20
H01108038*	38	-24	1.1/2"	45.0	1.77	47.5	1.87	50	720	200	2,900	300	11.81	1,170	0.79	MF+M00820-24	
H01108051*	51	-32	2"	58.0	2.28	60.5	2.38	50	720	200	2,900	400	15.75	1,560	1.05	MF+M00820-32	
H01108063*	63	-40	2.1/2"	70.5	2.78	73.0	2.87	50	720	200	2,900	760	29.92	2,090	1.40	MF+M03400-40	
H01108076*	76	-48	3"	85.0	3.35	87.7	3.45	35	500	140	2,030	900	35.43	2,616	1.76	MF+M03400-48	

KEY FEATURES

- Compact and flexible one wire braid hose line
- High temperature resistance for the most severe service and OEM applications
- Working pressure exceeds 1SC standards
- Superior protection with ROCKMASTER® cover compound
- High ozone and weather resistance
- Flame resistance to a wide range of specs.
- Antistatic and antitoxic cover
- Vacuum resistance with SAE 100 R4 performance approved on sizes up to DN 31

APPLICATIONS & FLUIDS

- Hydraulics: low-medium pressure lines with installation constraints in severe environmental conditions, specific installations with tough abrasion conditions, marine applications, underground and open pit mining
- Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

121 °C, 250 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

One high tensile steel braid

COVER

STRONG - TYPE “SD”
Synthetic rubber with high abrasion, ozone, weather and heat resistance

APPLICABLE SPECS

Exceeds EN 857 1SC; ISO 11237 1SC

TYPE APPROVALS

CU-TR; LR; MSHA; ABS; CCS; DNV-GL

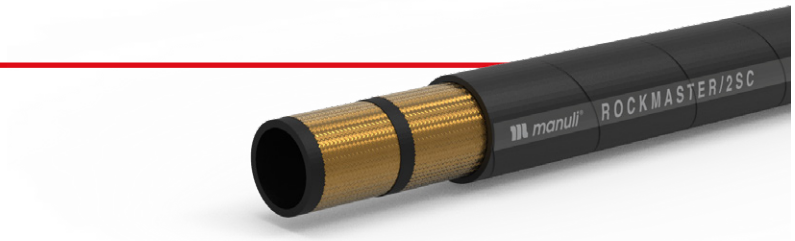
REMARKS

- *For hydraulic lift applications according to EN 81-20 applications, the following sizes and working pressures are recommended: DN 19 - WP = 50 bar; DN 25 - WP = 50 bar; DN 31 - WP = 50 bar*

manuli HYDRAULICS

ROCKMASTER/2SC

ABRASION, WEATHER & HEAT RESISTANCE



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H01030005*	5	-3	3/16"	9.7	0.38	11.5	0.45	420	6,090	2,000	29,000	40	1.57	220	0.15	MF+M03300-03	OPF-03
H01030006*	6	-4	1/4"	11.3	0.44	13.1	0.52	400	5,800	1,850	26,830	45	1.77	275	0.18	MF+M03300-04	OPF-04
H01030008*	8	-5	5/16"	12.9	0.51	14.7	0.58	350	5,070	1,700	24,650	55	2.17	325	0.22	MF+M03300-05	OPF-05
H01030010*	10	-6	3/8"	15.0	0.59	16.8	0.66	330	4,780	1,500	21,750	65	2.56	390	0.26	MF+M03300-06	OPF-06
H01030012*	12	-8	1/2"	18.5	0.73	20.3	0.80	275	3,980	1,220	17,690	80	3.15	500	0.34	MF+M03300-08	OPF-08
H01030016*	16	-10	5/8"	21.8	0.86	23.6	0.93	250	3,620	1,050	15,220	90	3.54	620	0.42	MF+M03400-10	OPF-10
H01030019*	19	-12	3/4"	25.6	1.01	27.6	1.09	245	3,550	980	14,210	120	4.72	790	0.53	MF+M03400-12	OPF-12
H01030025*	25	-16	1"	33.0	1.30	35.2	1.39	210	3,040	840	12,180	150	5.91	1,180	0.79	MF+M03400-16	OPF-16
H01030031*	31	-20	1.1/4"	41.1	1.62	43.6	1.72	140	2,030	560	8,120	250	9.84	1,550	1.04	MF+M03400-20	OPK-20
H01030038*	38	-24	1.1/2"	47.7	1.88	50.7	2.00	100	1,450	400	5,800	300	11.81	1,880	1.26	MF+M03400-24	OPK-24
H01030051*	51	-32	2"	60.4	2.38	63.4	2.50	90	1,300	360	5,220	400	15.75	2,430	1.63	MF+M03400-32	OPK-32
H01030063*	63	-40	2.1/2"	73.0	2.87	76.0	2.99	70	1,010	300	4,350	760	29.92	2,900	1.95	MF+M03400-40	
H01030076*	76	-48	3"	87.8	3.46	90.5	3.56	45	650	180	2,610	900	35.43	3,120	2.10	MF+M03400-48	

KEY FEATURES

- Compactness and flexibility
- Superior abrasion resistance
- High ozone and weather resistance
- Flame resistance to a wide range of specs.
- Antistatic and antitoxic cover
- Working pressure improvement
- Range extension to DN 76
- Vacuum resistance with SAE 100 R4 performance approved on sizes up to DN 76

APPLICATIONS & FLUIDS

- Hydraulics: medium-high pressure lines with installation constraints in severe environmental conditions, specific installations with tough abrasion conditions, marine applications, underground and open pit mining, return and suction lines
- Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

100 °C, 212 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Two high tensile steel braids

COVER

STRONG - TYPE “SD”
Synthetic rubber with high abrasion, ozone, weather and heat resistance

APPLICABLE SPECS

Exceeds EN 857 2SC; ISO 11237 2SC; SAE 100 R16. In addition: DN 25 SAE 100 R17; ISO 11237 R17

TYPE APPROVALS

ABS; BV; DNV-GL; CU-TR; LR; MSHA; RINA; B; FRAS; CCS; NK; DNV-GL(MED)

REMARKS

- *For hydraulic lift applications according to EN 81-20 applications, the following sizes and working pressures are recommended: DN 31 - WP = 50 bar; DN 38 - WP = 50 bar; DN 51 - WP = 45 bar*

manuli® HYDRAULICS

ROCKMASTER/1SN

ABRASION, WEATHER & HEAT RESISTANCE



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H01007006*	6	-4	1/4"	11.0	0.43	13.0	0.51	225	3,260	1,000	14,500	100	3.94	215	0.14	MF+M03400-04	OPF-04
H01007008*	8	-5	5/16"	12.6	0.50	14.6	0.57	215	3,110	950	13,770	114	4.49	260	0.17	MF+M03400-05	OPF-05
H01007010*	10	-6	3/8"	15.0	0.59	17.0	0.67	180	2,610	800	11,600	127	5.00	320	0.22	MF+M03400-06	OPF-06
H01007012*	12	-8	1/2"	18.1	0.71	20.1	0.79	160	2,320	680	9,860	178	7.01	400	0.27	MF+M03400-08	OPF-08
H01007016*	16	-10	5/8"	21.3	0.84	23.3	0.92	130	1,880	600	8,700	200	7.87	480	0.32	MF+M03400-10	OPF-10
H01007019*	19	-12	3/4"	25.3	1.00	27.3	1.07	105	1,520	500	7,250	240	9.45	600	0.40	MF+M03400-12	OPF-12
H01007025*	25	-16	1"	33.1	1.30	35.1	1.38	90	1,300	360	5,220	300	11.81	910	0.61	MF+M03400-16	OPF-16
H01007032*	31	-20	1.1/4"	40.6	1.60	43.3	1.70	65	940	260	3,770	419	16.50	1,243	0.84	MF+M03400-20	OPK-20
H01007040*	38	-24	1.1/2"	47.0	1.85	49.7	1.96	50	720	260	3,770	500	19.69	1,450	0.97	MF+M03400-24	OPK-24
H01007051*	51	-32	2"	60.4	2.38	63.1	2.48	40	580	250	3,620	630	24.80	2,050	1.38	MF+M03400-32	OPK-32
H01007060*	60	-38	2.3/8"	68.8	2.71	71.5	2.81	50	720	200	2,900	650	25.59	2,190	1.47	MF+M03400-38	

KEY FEATURES

- Superior abrasion resistance
- High ozone and weather resistance
- Flame resistance to a wide range of specs.
- Antistatic and antitoxic cover

APPLICATIONS & FLUIDS

- Hydraulics: low-medium pressure lines, return lines, in severe environmental conditions, specific installations with tough abrasion conditions, marine applications, underground and open pit mining
- Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

100 °C, 212 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

One high tensile steel braid

COVER

STRONG - TYPE “SD”
Synthetic rubber with high abrasion, ozone, weather and heat resistance

APPLICABLE SPECS

Exceeds EN 853 1SN; SAE 100 R1AT; ISO 1436 1SN/R1AT

TYPE APPROVALS

ABS; BV; DNV-GL; DNV-GL (MED); FRAS; CU-TR; MSHA; LR; NK; MA; CCS; KRS; RINA

manuli® HYDRAULICS

ROCKMASTER/2SN

ABRASION, WEATHER & HEAT RESISTANCE



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H01038006*	6	-4	1/4"	12.7	0.50	14.7	0.58	400	5,800	1,750	25,380	50	1.97	365	0.25	MF+M03400-04	OPF-04
H01038008*	8	-5	5/16"	14.3	0.56	16.3	0.64	350	5,070	1,480	21,460	60	2.36	405	0.27	MF+M03400-05	OPF-05
H01038010*	10	-6	3/8"	16.7	0.66	18.7	0.74	350	5,070	1,400	20,300	70	2.76	530	0.36	MF+M03400-06	OPF-06
H01038012*	12	-8	1/2"	19.8	0.78	21.8	0.86	350	5,070	1,400	20,300	89	3.50	650	0.44	MF+M03400-08	OPF-08
H01038016*	16	-10	5/8"	23.0	0.91	25.0	0.98	250	3,620	1,020	14,790	100	3.94	720	0.48	MF+M03400-10	OPF-10
H01038019*	19	-12	3/4"	27.0	1.06	29.0	1.14	215	3,110	900	13,050	130	5.12	930	0.62	MF+M03400-12	OPF-12
H01038025*	25	-16	1"	34.8	1.37	36.8	1.45	175	2,530	670	9,710	160	6.30	1,290	0.87	MF+M03400-16	OPF-16
H01038032*	31	-20	1.1/4"	44.3	1.74	47.0	1.85	140	2,030	600	8,700	419	16.50	1,930	1.30	MF+M03400-20	OPK-20
H01038040*	38	-24	1.1/2"	50.7	2.00	53.4	2.10	100	1,450	500	7,250	500	19.69	2,262	1.52	MF+M03400-24	OPK-24
H01038051*	51	-32	2"	63.5	2.50	66.2	2.61	90	1,300	420	6,090	630	24.80	2,880	1.94	MF+M03400-32	OPK-32
H01038060*	60	-38	2.3/8"	68.8	2.71	71.5	2.81	90	1,300	360	5,220	650	25.59	2,670	1.79	MF+M03400-38	

KEY FEATURES

- Superior abrasion resistance
- High ozone and weather resistance
- Flame resistance to a wide range of specs.
- Antistatic and antitoxic cover
- Over standard pressure resistance

APPLICATIONS & FLUIDS

- Hydraulics: medium-high pressure lines in severe environmental conditions, specific installations with tough abrasion conditions, marine applications, underground and open pit mining
- Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

100 °C, 212 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Two high tensile steel braids

COVER

STRONG - TYPE “SD”
Synthetic rubber with high abrasion, ozone, weather and heat resistance

APPLICABLE SPECS

Exceeds EN 853 2SN; SAE 100 R2AT; ISO 1436 2SN/R2AT

TYPE APPROVALS

ABS; BV; DNV-GL; DNV-GL (MED); LR; FRAS; CU-TR; MSHA; RINA ; B; NK; MA; DIN 5510-2; CCS; KRS

manuli HYDRAULICS

ROCKMASTER/2ST

ABRASION, WEATHER & HEAT RESISTANCE



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H01035005*	5	-3	3/16"	11.3	0.44	15.6	0.61	415	6,010	2,000	29,000	89	3.50	385	0.26	MF+M00910-03	
H01035006*	6	-4	1/4"	12.7	0.50	17.2	0.68	400	5,800	1,750	25,380	100	3.94	450	0.30	MF+M00910-04	
H01035008*	8	-5	5/16"	14.3	0.56	18.9	0.74	350	5,070	1,480	21,460	114	4.49	500	0.34	MF+M00910-05	
H01035010*	10	-6	3/8"	16.7	0.66	21.3	0.84	350	5,070	1,400	20,300	127	5.00	640	0.43	MF+M00910-06	
H01035012*	12	-8	1/2"	19.8	0.78	24.5	0.96	350	5,070	1,400	20,300	178	7.01	790	0.53	MF+M00910-08	
H01035016*	16	-10	5/8"	23.0	0.91	27.7	1.09	250	3,620	1,020	14,790	200	7.87	870	0.58	MF+M00910-10	
H01035019*	19	-12	3/4"	27.0	1.06	31.6	1.24	215	3,110	900	13,050	240	9.45	1,100	0.74	MF+M00920-12	
H01035025*	25	-16	1"	34.8	1.37	39.5	1.56	175	2,530	670	9,710	300	11.81	1,510	1.01	MF+M00930-16	
H01035032*	31	-20	1.1/4"	44.3	1.74	50.6	1.99	140	2,030	600	8,700	419	16.50	2,310	1.55	MF+M00920-20	
H01035040*	38	-24	1.1/2"	50.7	2.00	57.0	2.24	100	1,450	500	7,250	500	19.69	2,683	1.80	MF+M00910-24	
H01035051*	51	-32	2"	63.5	2.50	69.8	2.75	90	1,300	420	6,090	630	24.80	3,410	2.29	MF+M00910-32	

KEY FEATURES

- High robustness of the cover for mining applications and tough handling
- Superior abrasion resistance
- High ozone and weather resistance
- Flame resistance to a wide range of specs.
- Antistatic and antitoxic cover
- Over standard pressure resistance

APPLICATIONS & FLUIDS

- Hydraulics: medium-high pressure lines in severe environmental conditions, specific installations with tough abrasion conditions, marine applications, underground and open pit mining
- Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

100 °C, 212 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Two high tensile steel braids

COVER

STRONG - TYPE “SD”
Synthetic rubber with high abrasion, ozone, weather and heat resistance

APPLICABLE SPECS

Exceeds EN 853 2ST; SAE 100 R2A; ISO 1436 2ST/R2A

TYPE APPROVALS

BV; CU-TR; LR; B; MSHA; FRAS; ABS; RINA

manuli® HYDRAULICS

ROCKMASTER/2 PLUS SUPER ANTI-WEAR

ABRASION, WEATHER & HEAT RESISTANCE



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H01139006*	6	-4	1/4"	11.3	0.44	13.1	0.52	450	6,520	1,800	26,100	45	1.77	269	0.18	MF+M03400-04	
H01139010*	10	-6	3/8"	16.7	0.66	18.5	0.73	400	5,800	1,600	23,200	127	5.00	518	0.35	MF+M00910-06	OPK-06
H01139012*	12	-8	1/2"	20.1	0.79	22.1	0.87	362	5,250	1,450	21,030	150	5.91	683	0.46	MF+M00910-08	OPK-08
H01139016*	16	-10	5/8"	23.2	0.91	25.2	0.99	340	4,930	1,360	19,720	200	7.87	833	0.56	MF+M00910-10	OPK-10
H01139019*	19	-12	3/4"	27.1	1.07	29.3	1.15	310	4,490	1,240	17,980	230	9.06	1,034	0.69	MF+M00920-12	OPK-12
H01139025*	25	-16	1"	35.1	1.38	37.8	1.49	240	3,480	960	13,920	300	11.81	1,531	1.03	MF+M00930-16	OPK-16
H01139032*	31	-20	1.1/4"	44.5	1.75	47.2	1.86	175	2,530	700	10,150	380	14.96	2,055	1.38	MF+M00920-20	OPK-20
H01139038*	38	-24	1.1/2"	51.0	2.01	53.7	2.11	146	2,110	584	8,470	450	17.72	2,444	1.64	MF+M00910-24	
H01139051*	51	-32	2"	62.8	2.47	65.5	2.58	112	1,620	448	6,490	600	23.62	3,013	2.02	MF+M00910-32	
H01139076*	76	-48	3"	87.8	3.46	91.4	3.60	70	1,010	280	4,060	500	19.69	3,901	2.62	MF+M03400-48	

KEY FEATURES

- Superior pressure rating
- Superior abrasion resistance
- High ozone and weather resistance
- Flame resistance to a wide range of specs.
- Antistatic and antitoxic cover
- Robustness thanks to skive fittings solution

APPLICATIONS & FLUIDS

- Hydraulics: high pressure lines with installation constraints in severe environmental conditions, specific installations with tough abrasion conditions, marine applications, underground and open pit mining
- Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

100 °C, 212 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Two high tensile steel braids

COVER

R.O.C.
Synthetic rubber with extreme abrasion and ozone resistance

APPLICABLE SPECS

Manuli® Design exceeds ISO 1436-2SN; EN 853-2SN; SAE J517 Type 100R2AT. Performance BCS 174; ISO 6805 Type 4

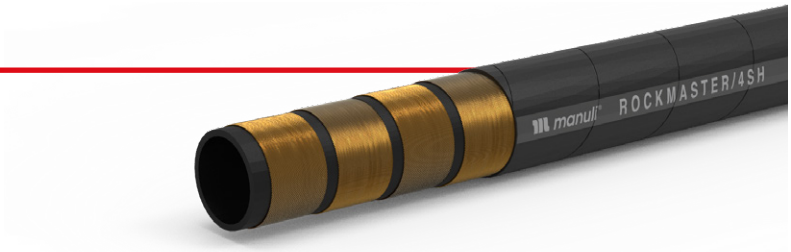
TYPE APPROVALS

MSHA; CU-TR

manuli HYDRAULICS

ROCKMASTER/4SH

ABRASION, WEATHER & HEAT RESISTANCE



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H10044016*	16	-10	5/8"	25.5	1.00	28.5	1.12	450	6,520	1,850	26,830	180	7.09	1,290	0.87	IP+M01500-10	
H10044019*	19	-12	3/4"	28.2	1.11	31.9	1.26	420	6,090	1,750	25,380	210	8.27	1,500	1.01	IP+M01500-12	SP+M05400-12
H10044025*	25	-16	1"	35.1	1.38	38.1	1.50	385	5,580	1,750	25,380	220	8.66	2,040	1.37	IP+M01500-16	SP+M05400-16
H10044032*	31	-20	1.1/4"	42.2	1.66	45.0	1.77	350	5,070	1,400	20,300	420	16.54	2,410	1.62	IP+M01500-20	SP+M05400-20
H10044038*	38	-24	1.1/2"	49.1	1.93	53.1	2.09	300	4,350	1,250	18,120	560	22.05	3,170	2.13	IP+M01500-24	SP+M05400-24
H10044051*	51	-32	2"	63.5	2.50	67.5	2.66	250	3,620	1,000	14,500	700	27.56	4,460	3.00	IP+M01500-32	SP+M05400-32

KEY FEATURES

- Validated for high fatigue resistance
- Superior abrasion resistance
- High ozone and weather resistance
- Flame resistance to a wide range of specs.
- Antistatic and antitoxic cover
- Upgraded temperature resistance
- BIO biological and mineral oils compatibility

APPLICATIONS & FLUIDS

- Hydraulics: very high pressure power lines in severe environmental conditions, specific installations with tough abrasion conditions, marine applications, underground and open pit mining
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

121 °C, 250 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Four high tensile steel spirals

COVER

STRONG - TYPE “SD”
Synthetic rubber with high abrasion, ozone, weather and heat resistance

APPLICABLE SPECS

Exceeds EN 856 4SH; ISO 3862 4SH

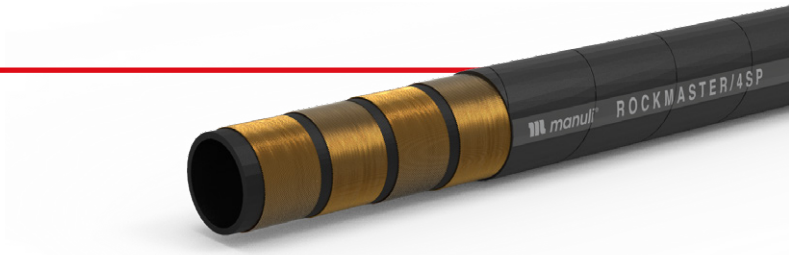
TYPE APPROVALS

ABS; DNV-GL; DNV-GL (MED); BV; FRAS; CU-TR; LR; MA; MSHA; B; RINA; NK; CCS; KRS

manuli® HYDRAULICS

ROCKMASTER/4SP

ABRASION, WEATHER & HEAT RESISTANCE



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H10008006*	6	-4	1/4"	14.7	0.58	17.6	0.69	485	7,030	2,400	34,800	125	4.92	590	0.40	MF+M00910-04	
H10008010*	10	-6	3/8"	17.6	0.69	21.0	0.83	450	6,520	2,000	29,000	125	4.92	740	0.50	MF+M00910-06	
H10008012*	12	-8	1/2"	20.3	0.80	24.2	0.95	420	6,090	1,750	25,380	175	6.89	880	0.59	MF+M00910-08	
H10008016*	16	-10	5/8"	23.7	0.93	27.6	1.09	380	5,510	1,600	23,200	200	7.87	1,080	0.73	MF+M00910-10	
H10008019*	19	-12	3/4"	28.2	1.11	31.7	1.25	380	5,510	1,600	23,200	240	9.45	1,450	0.97	MF+M00920-12	SP+M05400-12
H10008025*	25	-16	1"	35.0	1.38	39.0	1.54	320	4,640	1,400	20,300	340	13.39	1,880	1.26	MF+M00930-16	SP+M05400-16
H10008032*	31	-20	1.1/4"	46.1	1.81	49.7	1.96	210	3,040	1,250	18,120	460	18.11	2,990	2.01	MF+M00920-20	SP+M05500-20
H10008038*	38	-24	1.1/2"	52.4	2.06	56.1	2.21	185	2,680	1,000	14,500	560	22.05	3,500	2.35	MF+M00910-24	SP+M05500-24
H10008051*	51	-32	2"	65.4	2.57	69.0	2.72	175	2,530	1,000	14,500	660	25.98	5,010	3.37	MF+M00910-32	SP+M05400-32

KEY FEATURES

- Validated for high fatigue resistance
- Superior abrasion resistance
- High ozone and weather resistance
- Flame resistance to a wide range of specs.
- Antistatic and antitoxic cover
- Upgraded temperature resistance
- BIO biological and mineral oils compatibility

APPLICATIONS & FLUIDS

- Hydraulics: very high pressure power lines in severe environmental conditions, specific installations with tough abrasion conditions, marine applications, underground and open pit mining
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

121 °C, 250 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Four high tensile steel spirals

COVER

STRONG - TYPE “SD”
Synthetic rubber with high abrasion, ozone, weather and heat resistance

APPLICABLE SPECS

Exceeds EN 856 4SP; ISO 3862 4SP; DN 16 & 19: thin cover style, exceeds EN 856 4SP and ISO 3862 4SP

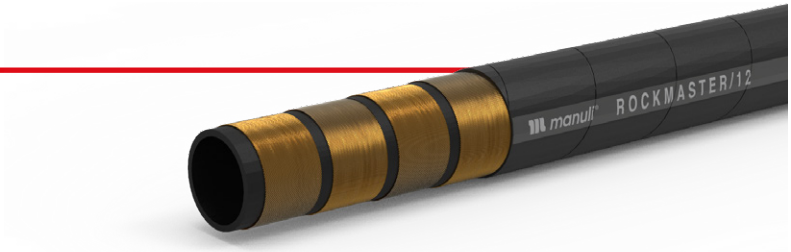
TYPE APPROVALS

ABS; DNV-GL; DNV-GL (MED); BV; FRAS; CU-TR; MA; MSHA; RINA; B; LR; NK; DB (EN 45545-2); CCS; KRS

manuli HYDRAULICS

ROCKMASTER/12

ABRASION, WEATHER & HEAT RESISTANCE



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H10031010*	10	-6	3/8"	17.3	0.68	20.0	0.79	280	4,060	1,600	23,200	100	3.94	620	0.42	MF+M00910-06	OPK-06
H10031012*	12	-8	1/2"	20.4	0.80	23.5	0.93	280	4,060	1,350	19,580	125	4.92	760	0.51	MF+M00910-08	OPK-08
H10031016*	16	-10	5/8"	24.4	0.96	27.1	1.07	280	4,060	1,300	18,850	140	5.51	990	0.67	MF+M00910-10	OPK-10
H10031019*	19	-12	3/4"	27.4	1.08	30.4	1.20	280	4,060	1,300	18,850	150	5.91	1,160	0.78	MF+M00920-12	OPK-12
H10031025*	25	-16	1"	35.0	1.38	37.6	1.48	280	4,060	1,150	16,670	225	8.86	1,740	1.17	MF+M00930-16	OPK-16
H10031A32*	31	-20	1.1/4"	43.1	1.70	45.9	1.81	210	3,040	1,000	14,500	250	9.84	2,280	1.53	MF+M00920-20	OPK-20
H10031040*	38	-24	1.1/2"	50.0	1.97	53.3	2.10	175	2,530	1,000	14,500	500	19.69	3,130	2.10	MF+M00910-24	OPK-24
H10031051*	51	-32	2"	63.6	2.50	66.7	2.63	175	2,530	800	11,600	630	24.80	4,440	2.98	MF+M00910-32	OPK-32

KEY FEATURES

- Validated for high fatigue resistance
- Superior abrasion resistance
- High ozone and weather resistance
- Flame resistance to a wide range of specs.
- Antistatic and antitoxic cover
- BIO biological and mineral oils compatibility

APPLICATIONS & FLUIDS

- Hydraulics: high pressure power lines in severe environmental conditions, specific installations with tough abrasion conditions, marine applications, underground and open pit mining
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

121 °C, 250 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Four high tensile steel spirals

COVER

STRONG - TYPE “SD”
Synthetic rubber with high abrasion, ozone, weather and heat resistance

APPLICABLE SPECS

Exceeds EN 856 R12; SAE 100 R12; ISO 3862 R12

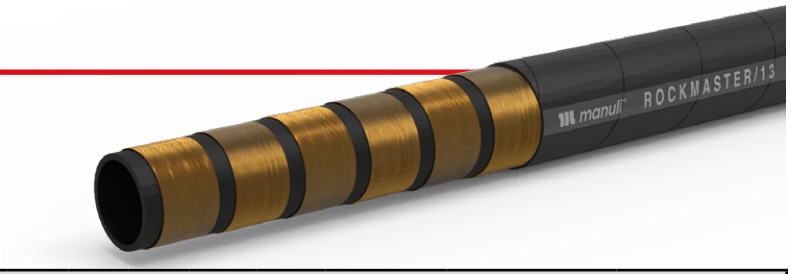
TYPE APPROVALS

ABS; BV; FRAS; CU-TR; LR; MA; MSHA; NK; DNV-GL(MED)

manuli® HYDRAULICS

ROCKMASTER/13

ABRASION, WEATHER & HEAT RESISTANCE



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H10035A06*	6	-4	1/4"	14.6	0.57	17.6	0.69	690	10,000	3,250	47,130	120	4.72	660	0.44		
H10035A10*	10	-6	3/8"	17.4	0.69	20.4	0.80	690	10,000	2,900	42,060	150	5.91	830	0.56		
H10035A12*	12	-8	1/2"	21.5	0.85	24.5	0.96	620	8,990	2,500	36,250	200	7.87	1,140	0.77		
H10035019*	19	-12	3/4"	29.0	1.14	31.8	1.25	350	5,070	1,950	28,280	240	9.45	1,630	1.10	IP+M01500-12	SP+M05400-12
H10035025*	25	-16	1"	36.0	1.42	39.2	1.54	350	5,070	1,650	23,930	300	11.81	2,190	1.47	IP+M01500-16	SP+M05400-16
H10035032*	31	-20	1.1/4"	47.0	1.85	50.0	1.97	350	5,070	1,500	21,750	420	16.54	3,600	2.42	IP+M01600-20	SP+M05500-20
H10035040*	38	-24	1.1/2"	54.6	2.15	57.5	2.26	350	5,070	1,600	23,200	500	19.69	4,700	3.16	IP+M01600-24	SP+M05500-24
H10035051*	51	-32	2"	68.4	2.69	72.0	2.83	350	5,070	1,500	21,750	630	24.80	6,800	4.57	IP+M01800-32	SP+M05500-32

KEY FEATURES

- Validated for high fatigue resistance
- Superior abrasion resistance
- High ozone and weather resistance
- Flame resistance to a wide range of specs.
- Antistatic and antitoxic cover
- BIO biological and mineral oils compatibility

APPLICATIONS & FLUIDS

- Hydraulics: heavy duty power lines, hydrostatic transmissions, severe environmental conditions, specific installations with tough abrasion conditions, marine applications, underground and open pit mining
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

121 °C, 250 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Four high tensile steel spirals (DN 6-25). Six high tensile steel spirals (DN 31-51)

COVER

STRONG - TYPE “SD”
Synthetic rubber with high abrasion, ozone, weather and heat resistance

APPLICABLE SPECS

Exceeds EN 856 R13; SAE 100 R13; ISO 3862 R13

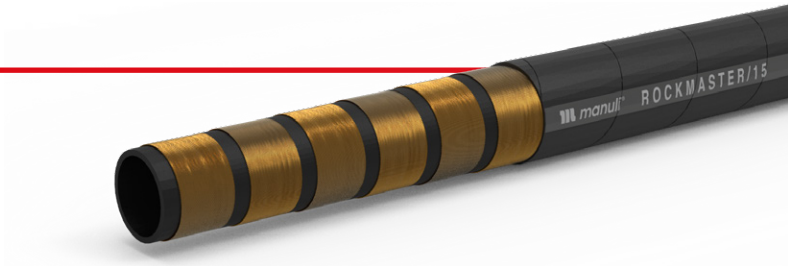
TYPE APPROVALS

ABS; BV; DNV-GL; FRAS; LR; CU-TR; MA; MSHA; RINA; B; CCS; DNV-GL(MED)

manuli HYDRAULICS

ROCKMASTER/15

ABRASION, WEATHER & HEAT RESISTANCE



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H10049019*	19	-12	3/4"	28.2	1.11	31.0	1.22	420	6,090	1,750	25,380	265	10.43	1,440	0.97	IP+M01500-12	SP+M05400-12
H10049025*	25	-16	1"	35.1	1.38	38.1	1.50	420	6,090	1,750	25,380	267	10.51	2,040	1.37	IP+M01500-16	SP+M05400-16
H10049A32*	31	-20	1.1/4"	46.3	1.82	49.5	1.95	420	6,090	1,680	24,360	267	10.51	3,660	2.46	IP+M01600-20	SP+M05500-20
H10049040*	38	-24	1.1/2"	54.6	2.15	57.5	2.26	420	6,090	1,680	24,360	315	12.40	4,700	3.16	IP+M01600-24	SP+M05500-24

KEY FEATURES

- Validated for high fatigue resistance
- Superior abrasion resistance
- High ozone and weather resistance
- Flame resistance to a wide range of specs.
- Antistatic and antitoxic cover
- BIO biological and mineral oils compatibility

APPLICATIONS & FLUIDS

- Hydraulics: heavy duty power lines, hydrostatic transmissions, in severe environmental conditions, specific installations with tough abrasion conditions, marine applications, underground and open pit mining
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

121 °C, 250 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Four high tensile steel spirals (DN 19 - 25). Six high tensile steel spirals (DN 31- 38)

COVER

STRONG - TYPE “SD”
Synthetic rubber with high abrasion, ozone, weather and heat resistance

APPLICABLE SPECS

Exceeds SAE 100 R15; ISO 3862 R15

TYPE APPROVALS

ABS; BV; DNV-GL; FRAS; CU-TR; LR; MA; MSHA; B; CCS; RINA; DNV-GL(MED)

manuli® HYDRAULICS

EQUATOR/1 (BLACK)

EXTREME HIGH TEMPERATURE - BLACK VERSION



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H01058006*	6	-4	1/4"	11.0	0.43	13.4	0.53	225	3,260	1,000	14,500	100	3.94	240	0.16	MF+M00120-04	OPF-04
H01058008*	8	-5	5/16"	12.6	0.50	15.0	0.59	215	3,110	900	13,050	114	4.49	280	0.19	MF+M00120-05	
H01058010*	10	-6	3/8"	15.0	0.59	17.3	0.68	180	2,610	800	11,600	127	5.00	335	0.23	MF+M00120-06	
H01058012*	12	-8	1/2"	18.1	0.71	20.5	0.81	160	2,320	680	9,860	178	7.01	430	0.29	MF+M00120-08	
H01058016*	16	-10	5/8"	21.3	0.84	23.5	0.93	130	1,880	600	8,700	200	7.87	500	0.34	MF+M00120-10	
H01058019*	19	-12	3/4"	25.2	0.99	27.7	1.09	105	1,520	500	7,250	240	9.45	640	0.43	MF+M00120-12	
H01058025*	25	-16	1"	33.1	1.30	35.8	1.41	88	1,270	360	5,220	300	11.81	970	0.65	MF+M00130-16	
H01058031*	31	-20	1.1/4"	40.6	1.60	43.5	1.71	65	940	345	5,000	420	16.54	1,300	0.87	MF+M00110-20	OPK-20
H01058038*	38	-24	1.1/2"	46.9	1.85	50.0	1.97	50	720	290	4,200	500	19.69	1,540	1.03	MF+M00110-24	OPK-24
H01058051*	51	-32	2"	60.4	2.38	63.1	2.48	40	580	250	3,620	630	24.80	2,100	1.41	MF+M00110-32	OPK-32
H01058063*	63	-40	2.1/2"	72.0	2.83	74.6	2.94	35	500	140	2,030	600	23.62	2,400	1.61	MF+M03400-40	

KEY FEATURES

- Wide range temperature resistance
- EN/DIN and new SAE pressure rating
- Outstanding ozone resistance
- Superior weather and UV resistance
- High aging resistance

APPLICATIONS & FLUIDS

- Hydraulics: low-medium pressure lines in extreme temperature conditions (foundries, compressors, hydraulics within engine compartments, etc.)
- Mineral oils, glycols and polyglycols, transmission fluids, air with oil vapours, mineral oils in aqueous emulsion (up to 212°F/100°C)

CONTINUOUS SERVICE TEMPERATURE RANGE

-55 °C, -67 °F

135 °C, 275 °F

MAX. OPERATING TEMPERATURE

150 °C, 300 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

One high tensile steel braid

COVER

STANDARD - TYPE “XT”
Synthetic rubber with high ozone, weather and heat resistance

APPLICABLE SPECS

Exceeds EN 853 1SN; SAE 100 R1AT; ISO 1436 1SN/R1AT

TYPE APPROVALS

ABS; DNV-GL; CU-TR; LR; MSHA; DNV-GL(MED)

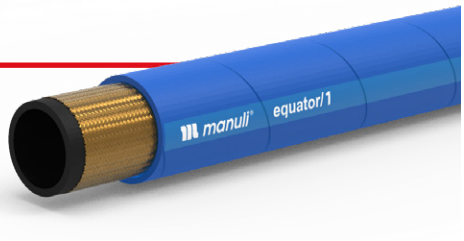
REMARKS

- *Compressed air applications require cover pin-pricking and additional safety devices. High pressure compressed air applications must be carefully analysed to verify the suitability of the hose, contact Manuli Hydraulics Help Desk for technical guidelines.*
- *Equator hose is not suitable for high temperature water applications*
- *Equator hoses are not designed and not approved for “air brake” applications on railway and/or mobile equipment*

manuli HYDRAULICS

EQUATOR/1 (BLUE)

EXTREME HIGH TEMPERATURE - BLUE VERSION



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H01059006*	6	-4	1/4"	11.0	0.43	13.4	0.53	225	3,260	1,000	14,500	100	3.94	240	0.16	MF+M00120-04	OPF-04
H01059008*	8	-5	5/16"	12.6	0.50	15.0	0.59	215	3,110	900	13,050	114	4.49	285	0.19	MF+M00120-05	
H01059010*	10	-6	3/8"	15.0	0.59	17.3	0.68	180	2,610	800	11,600	127	5.00	340	0.23	MF+M00120-06	
H01059012*	12	-8	1/2"	18.1	0.71	20.5	0.81	160	2,320	680	9,860	178	7.01	435	0.29	MF+M00120-08	
H01059016*	16	-10	5/8"	21.3	0.84	23.5	0.93	130	1,880	600	8,700	200	7.87	510	0.34	MF+M00120-10	
H01059019*	19	-12	3/4"	25.2	0.99	27.7	1.09	105	1,520	500	7,250	240	9.45	640	0.43	MF+M00120-12	
H01059025*	25	-16	1"	33.1	1.30	35.8	1.41	88	1,270	360	5,220	300	11.81	980	0.66	MF+M00130-16	
H01059032*	31	-20	1.1/4"	40.6	1.60	43.5	1.71	65	940	345	5,000	420	16.54	1,300	0.87	MF+M00110-20	OPK-20
H01059038*	38	-24	1.1/2"	46.9	1.85	50.0	1.97	50	720	290	4,200	500	19.69	1,540	1.03	MF+M00110-24	OPK-24
H01059051*	51	-32	2"	60.4	2.38	63.1	2.48	40	580	250	3,620	630	24.80	2,100	1.41	MF+M00110-32	OPK-32
H01059063*	63	-40	2.1/2"	72.0	2.83	74.6	2.94	35	500	140	2,030	600	23.62	2,400	1.61	MF+M03400-40	

KEY FEATURES

- Wide range temperature resistance
- EN/DIN and new SAE pressure rating
- Outstanding ozone resistance
- Superior weather and UV resistance
- High aging resistance

APPLICATIONS & FLUIDS

- Hydraulics: low-medium pressure lines in extreme temperature conditions (foundries, compressors, hydraulics within engine compartments, etc.)
- Mineral oils, glycols and polyglycols, transmission fluids, air with oil vapours, mineral oils in aqueous emulsion (up to 212°F/100°C)

CONTINUOUS SERVICE TEMPERATURE RANGE

-55 °C, -67 °F

135 °C, 275 °F

MAX. OPERATING TEMPERATURE

150 °C, 300 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

One high tensile steel braid

COVER

STANDARD - TYPE “XT”
Synthetic rubber with high ozone, weather and heat resistance

APPLICABLE SPECS

Exceeds EN 853 1SN; SAE 100 R1AT; ISO 1436 1SN/R1AT

TYPE APPROVALS

ABS; BV; DNV-GL(MED); DNV-GL; CU-TR; LR; MSHA

REMARKS

- *Compressed air applications require cover pin-pricking and additional safety devices. High pressure compressed air applications must be carefully analysed to verify the suitability of the hose, contact Manuli Hydraulics Help Desk for technical guidelines.*
- *Equator hose is not suitable for high temperature water applications*
- *Equator hoses are not designed and not approved for “air brake” applications on railway and/or mobile equipment*

manuli® HYDRAULICS

EQUATOR/2 (BLACK)

EXTREME HIGH TEMPERATURE - BLACK VERSION



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H01060006*	6	-4	1/4"	12.7	0.50	14.9	0.59	400	5,800	1,725	25,010	100	3.94	390	0.26	MF+M00910-04	OPF-04
H01060008*	8	-5	5/16"	14.3	0.56	16.5	0.65	350	5,070	1,480	21,460	114	4.49	435	0.29	MF+M00910-05	
H01060010*	10	-6	3/8"	16.7	0.66	19.0	0.75	330	4,780	1,400	20,300	127	5.00	530	0.36	MF+M00910-06	
H01060012*	12	-8	1/2"	19.8	0.78	22.0	0.87	275	3,980	1,200	17,400	178	7.01	640	0.43	MF+M00910-08	
H01060016*	16	-10	5/8"	23.0	0.91	25.2	0.99	250	3,620	1,020	14,790	200	7.87	760	0.51	MF+M00910-10	
H01060019*	19	-12	3/4"	27.0	1.06	29.0	1.14	215	3,110	900	13,050	240	9.45	940	0.63	MF+M00920-12	
H01060025*	25	-16	1"	34.8	1.37	37.0	1.46	175	2,530	700	10,150	300	11.81	1,350	0.91	MF+M00930-16	
H01060031*	31	-20	1.1/4"	44.3	1.74	47.0	1.85	150	2,170	600	8,700	420	16.54	2,010	1.35	MF+M00920-20	
H01060038*	38	-24	1.1/2"	50.7	2.00	53.4	2.10	100	1,450	410	5,940	500	19.69	2,250	1.51	MF+M00910-24	OPK-24
H01060051*	51	-32	2"	63.5	2.50	66.2	2.61	90	1,300	370	5,360	630	24.80	3,080	2.07	MF+M00910-32	OPK-32

KEY FEATURES

- Wide range temperature resistance
- EN/DIN and new SAE pressure rating
- Outstanding ozone resistance
- Superior weather and UV resistance
- High aging resistance

APPLICATIONS & FLUIDS

- Hydraulics: medium-high pressure lines in extreme temperature conditions (foundries, compressors, hydraulics within engine compartments, etc.)
- Mineral oils, glycols and polyglycols, transmission fluids, air with oil vapours, mineral oils in aqueous emulsion (up to 212°F/100°C)

CONTINUOUS SERVICE TEMPERATURE RANGE

-55 °C, -67 °F

135 °C, 275 °F

MAX. OPERATING TEMPERATURE

150 °C, 300 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Two high tensile steel braids

COVER

STANDARD - TYPE “XT”
Synthetic rubber with high ozone, weather and heat resistance

APPLICABLE SPECS

Exceeds EN 853 2SN; SAE 100 R2AT; ISO 1436 2SN/R2AT

TYPE APPROVALS

ABS; DNV-GL; CU-TR; LR; MSHA; DNV-GL(MED)

REMARKS

- *Compressed air applications require cover pin-pricking and additional safety devices. High pressure compressed air applications must be carefully analysed to verify the suitability of the hose, contact Manuli Hydraulics Help Desk for technical guidelines.*
- *Equator hose is not suitable for high temperature water applications*
- *Equator hoses are not designed and not approved for “air brake” applications on railway and/or mobile equipment*

manuli HYDRAULICS

EQUATOR/2 (BLUE)

EXTREME HIGH TEMPERATURE - BLUE VERSION



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H01061006*	6	-4	1/4"	12.7	0.50	14.9	0.59	400	5,800	1,725	25,010	100	3.94	395	0.27	MF+M00910-04	OPF-04
H01061008*	8	-5	5/16"	14.3	0.56	16.5	0.65	350	5,070	1,480	21,460	114	4.49	435	0.29	MF+M00910-05	
H01061010*	10	-6	3/8"	16.7	0.66	19.0	0.75	330	4,780	1,400	20,300	127	5.00	530	0.36	MF+M00910-06	
H01061012*	12	-8	1/2"	19.8	0.78	22.0	0.87	275	3,980	1,200	17,400	178	7.01	640	0.43	MF+M00910-08	
H01061016*	16	-10	5/8"	23.0	0.91	25.2	0.99	250	3,620	1,020	14,790	200	7.87	760	0.51	MF+M00910-10	
H01061019*	19	-12	3/4"	27.0	1.06	29.0	1.14	215	3,110	900	13,050	240	9.45	940	0.63	MF+M00920-12	
H01061025*	25	-16	1"	34.8	1.37	37.0	1.46	175	2,530	700	10,150	300	11.81	1,350	0.91	MF+M00930-16	
H01061032*	31	-20	1.1/4"	44.3	1.74	47.0	1.85	150	2,170	600	8,700	420	16.54	2,010	1.35	MF+M00920-20	
H01061040*	38	-24	1.1/2"	50.7	2.00	53.4	2.10	100	1,450	410	5,940	500	19.69	2,250	1.51	MF+M00910-24	OPK-24
H01061051*	51	-32	2"	63.5	2.50	66.2	2.61	90	1,300	370	5,360	630	24.80	3,080	2.07	MF+M00910-32	OPK-32

KEY FEATURES

- Wide range temperature resistance
- EN/DIN and new SAE pressure rating
- Outstanding ozone resistance
- Superior weather and UV resistance
- High aging resistance

APPLICATIONS & FLUIDS

- Hydraulics: medium-high pressure lines in extreme temperature conditions (foundries, compressors, hydraulics within engine compartments, etc.)
- Mineral oils, glycols and polyglycols, transmission fluids, air with oil vapours, mineral oils in aqueous emulsion (up to 212°F/100°C)

CONTINUOUS SERVICE TEMPERATURE RANGE

-55 °C, -67 °F

135 °C, 275 °F

MAX. OPERATING TEMPERATURE

150 °C, 300 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Two high tensile steel braids

COVER

STANDARD - TYPE “XT”
Synthetic rubber with high ozone, weather and heat resistance

APPLICABLE SPECS

Exceeds EN 853 2SN; SAE 100 R2AT; ISO 1436 2SN/R2AT

TYPE APPROVALS

ABS; BV; DNV-GL(MED); DNV-GL; CU-TR; LR; MSHA; DIN 5510-2

REMARKS

- *Compressed air applications require cover pin-pricking and additional safety devices. High pressure compressed air applications must be carefully analysed to verify the suitability of the hose, contact Manuli Hydraulics Help Desk for technical guidelines.*
- *Equator hose is not suitable for high temperature water applications*
- *Equator hoses are not designed and not approved for “air brake” applications on railway and/or mobile equipment*

manuli® HYDRAULICS

INFINITY

LONG SERVICE LIFE & HIGH RELIABILITY



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H01164006	6	-04	1/4"	11.3	0.44	13.1	0.52	450	6,520	1,800	26,100	45	1.77	275	0.18	MF+M00120-04	OPF-04
H01164008	8	-05	5/16"	12.9	0.51	14.7	0.58	400	5,800	1,600	23,200	55	2.17	325	0.22	MF+M00120-05	OPF-05
H01164010	10	-06	3/8"	15.0	0.59	16.8	0.66	400	5,800	1,600	23,200	65	2.56	440	0.30	MF+M00120-06	OPK-06
H01164012	12	-08	1/2"	18.6	0.73	20.4	0.80	360	5,220	1,440	20,880	80	3.15	560	0.38	MF+M00120-08	OPK-08
H01164016	16	-10	5/8"	22.7	0.89	24.7	0.97	320	4,640	1,280	18,560	90	3.54	730	0.49	MF+M00120-10	OPK-10
H01164019	19	-12	3/4"	27.1	1.07	29.3	1.15	320	4,640	1,280	18,560	120	4.72	1,070	0.72	MF+M00120-12	OPK-12
H01164025	25	-16	1"	33.7	1.33	35.9	1.41	225	3,263	900	13,050	160	6.30	1,340	0.90	MF+M00130-16	OPK-16

KEY FEATURES

- The Hi-Performance solution for toughest OEM specifications
- Performance far exceeds EN 857-2SC
- Extended service life and resistance to fatigue
- High temperature and environmental resistance
- Enhanced flex impulse resistance with M00120 skive ferrule
- Wide chemical compatibility with hydraulic fluids

APPLICATIONS & FLUIDS

- Hydraulics: high pressure lines with installation constraints in severe OEM applications
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

121 °C, 250 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Two high tensile steel braids

COVER

STRONG - TYPE “SC”
Synthetic rubber with high abrasion, ozone, weather and heat resistance and an extended operational temperature range

APPLICABLE SPECS

Exceed EN 857 2SC, SAE 100R16, ISO 11237-2SC

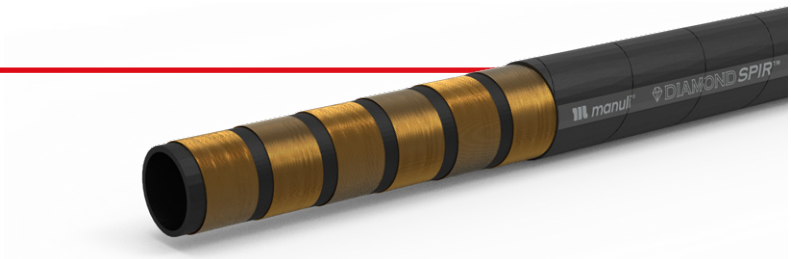
TYPE APPROVALS

MSHA; CU-TR; FRAS; B

manuli® HYDRAULICS

DIAMONDSPIR

VERY HIGH PRESSURE



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H10018019*	19	-12	3/4"	29.1	1.15	32.1	1.26	560	8,120	2,240	32,480	280	11.02	1,660	1.12	IP+M01850-12	
H10018025*	25	-16	1"	38.2	1.50	41.2	1.62	560	8,120	2,240	32,480	350	13.78	2,910	1.96	IP+M01850-16	
H10018032*	31	-20	1.1/4"	47.7	1.88	50.9	2.00	525	7,610	2,100	30,450	420	16.54	4,210	2.83	IP+M01850-20	
H10018038*	38	-24	1.1/2"	55.2	2.17	58.7	2.31	475	6,880	1,900	27,550	500	19.69	5,230	3.51	IS+M02700-24	
H10018051*	51	-32	2"	68.4	2.69	71.9	2.83	420	6,090	1,680	24,360	600	23.62	6,680	4.49	IS+M02700-32	

KEY FEATURES

- Very high pressure resistance
- Validated for high fatigue resistance
- Superior abrasion resistance
- High ozone and weather resistance
- Flame resistance to a wide range of specs.
- Antistatic and antitoxic cover
- BIO Biological and mineral oils compatibility

APPLICATIONS & FLUIDS

- Hydraulics: heavy duty power lines, hydrostatic transmissions, in severe environmental conditions, specific installations with tough abrasion conditions, off-shore applications, underground and open pit mining
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

121 °C, 250 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Six high tensile steel spirals (DN 25-76). Four high tensile steel spirals (DN 19)

COVER

STRONG - TYPE “SD”
Synthetic rubber with high abrasion, ozone, weather and heat resistance

APPLICABLE SPECS

Manuli® Design exceeds ISO 3862 R15

TYPE APPROVALS

ABS; FRAS; CU-TR; MSHA; MA

manuli® HYDRAULICS

SYNERGY

HIGH PRESSURE HYDRAULICS



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H10137006*	6	-4	1/4"	14,0	0,55	16,6	0,65	450	6525	1800	26100	100	3,94	462	0,31	MF+M00910-04	
H10137010*	10	-6	3/8"	16,2	0,64	18,2	0,72	450	6525	1800	26100	125	4,92	513	0,34	MF+M03500-06	MF+M00910-06
H10137012*	12	-8	1/2"	20,5	0,81	23,8	0,94	420	6090	1680	24360	160	6,30	798	0,54	MF+M03500-08	MF+M00910-08
H10137019*	19	-12	3/4"	28,4	1,12	31,3	1,23	365	5292,5	1460	21170	240	9,45	1274	0,86	SP+M05400-12	MF+M00920-12GX
H10137025*	25	-16	1"	34,2	1,35	37,8	1,49	300	4350	1200	17400	340	13,39	1714	1,15	SP+M05400-16	MF+M00930-16
H10137031*	31	-20	1-1/4"	43,2	1,70	46,2	1,82	210	3045	840	12180	460	18,11	2231	1,50	SP+M05400-20	MF+M00920-20

KEY FEATURES

- Long life resistance in severe hydraulic applications
- High abrasion resistance
- High ozone and weather resistance
- Flame retardant and antistatic cover
- High flexibility and durability
- Low bend radii
- Compact dimensions

APPLICATIONS & FLUIDS

- Hydraulics: very high pressure hydraulic lines in severe environmental conditions, specific installations with tough abrasion conditions, marine applications, underground and open pit mining;
- Mineral oils, vegetable oils and synthetic ester based oils, glycols and polyglycols, mineral oils in aqueous emulsion, water.

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

121 °C, 250 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

1 wire braid and 2 wire spirals, high tensile steel

COVER

STRONG - TYPE “SC”
Synthetic rubber with high abrasion, ozone, weather and heat resistance and an extended operational temperature range

APPLICABLE SPECS

Manuli® Design, exceeds 4SP performance

TYPE APPROVALS

MSHA

manuli HYDRAULICS

XTRAFLOW/2WB

HIGH FLOW RATES, LOW PRESSURE DROPS



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H01129063*	63	-40	2.1/2"	75.8	2.98	78.5	3.09	105	1,520	420	6,090	510	20.08	3,531	2.37	SP+M05400-40	
H01129076*	76	-48	3"	89.0	3.50	93.6	3.69	80	1,160	320	4,640	510	20.08	4,976	3.34	SP+M05400-48	
H01129089*	89	-56	3.1/2"	102.2	4.02	107.4	4.23	35	500	140	2,030	710	27.95	5,530	3.72	SP+M05400-56	

KEY FEATURES

- Low pressure drops even with high flow rates
- Superior abrasion resistance
- High ozone and weather resistance
- Flame resistance and electrical antistatic properties of the cover
- High working pressure associated to high flow rates
- Vacuum resistance with SAE 100 R4 performance

APPLICATIONS & FLUIDS

- Medium-Low pressure hydraulic lines with high flow rates, specific installations with severe abrasion conditions, marine applications, underground and open pit mining, return and suction lines
- Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

100 °C, 212 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Two high tensile steel wire braids

COVER

S.H.A.R.C.
Synthetic rubber with very high abrasion, ozone and weather resistance

APPLICABLE SPECS

Extension EN 857-2SC, ISO 11237-2SC

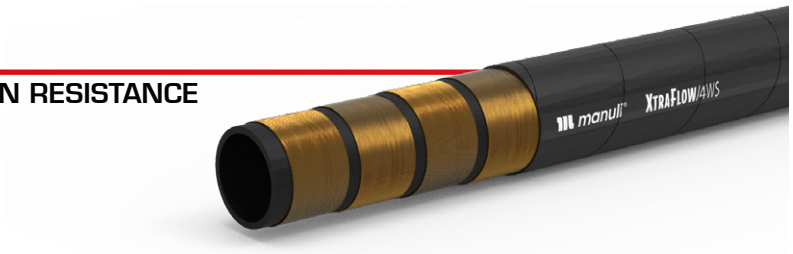
TYPE APPROVALS

CU-TR; MSHA; ABS; DNV-GL; FRAS; MA

manuli® HYDRAULICS

XTRAFLOW/4WS

HIGH FLOW RATES, OUTSTANDING ABRASION RESISTANCE



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H10091063*	63	-40	2.1/2"	77.5	3.05	81.5	3.21	140	2,030	700	10,150	700	27.56	5,890	3.96	SP+M05400-40	
H10091076*	76	-48	3"	87.8	3.46	92.2	3.63	105	1,520	525	7,610	700	27.56	5,367	3.61	SP+M05400-48	
H10091089*	89	-56	3.1/2"	103.7	4.08	108.7	4.28	80	1,160	400	5,800	800	31.50	8,187	5.50	SP+M05400-56	
H10091102*	102	-64	4"	120.0	4.72	126.0	4.96	35	500	140	2,030	900	35.43	10,210	6.86	SP+M05400-64	

KEY FEATURES

- Low pressure drops even with high flow rates
- Extreme abrasion resistance
- High ozone and weather resistance
- Flame retardant and antistatic cover
- Superior pressure rating
- Structure robustness for tough handling

APPLICATIONS & FLUIDS

- General hydraulics with high flow rates, mine hydraulic return lines, long wall water lines
- Mineral oils, vegetable oils and synthetic ester based oils, glycols and polyglycols, mineral oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

100 °C, 212 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Four hight tensile steel wire spirals

COVER

S.H.A.R.C.
Synthetic rubber with very high abrasion, ozone and weather resistance

APPLICABLE SPECS

Manuli® Design

TYPE APPROVALS

CU-TR; MSHA; ABS; DNV-GL

manuli® HYDRAULICS

XTRAFLOW/HT

HIGH TEMPERATURE SUCTION & RETURN LINES



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H01128063*	63	-40	2.1/2"	75.8	2.98	78.5	3.09	35	500	140	2,030	254	10.00	3,589	2.41	MF+M03400-40	
H01128076*	76	-48	3"	87.8	3.46	90.5	3.56	35	500	140	2,030	355	13.98	3,291	2.21	MF+M03400-48	
H01128089*	89	-56	3.1/2"	102.2	4.02	106.0	4.17	35	500	140	2,030	475	18.70	5,708	3.84	MF+M03400-56	

KEY FEATURES

- Vacuum resistance exceeding SAE 100R4 performance
- Extreme high temperature and heat aging resistance
- High flow rates
- Reduced bend radii compared to SAE 100R4

APPLICATIONS & FLUIDS

- Suction and return lines in hydraulic systems with high temperature fluids, low pressure hydraulic systems in mining equipment.
- Mineral oils, glycols and polyglycols, transmission fluids, mineral oils in aqueous emulsion (up to 212°F 100°C), air with oil vapours.

CONTINUOUS SERVICE TEMPERATURE RANGE

-55 °C, -67 °F

135 °C, 275 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Two wire braids of high tensile steel wire

COVER

STANDARD - TYPE “XT”
Synthetic rubber with high ozone, weather and heat resistance

APPLICABLE SPECS

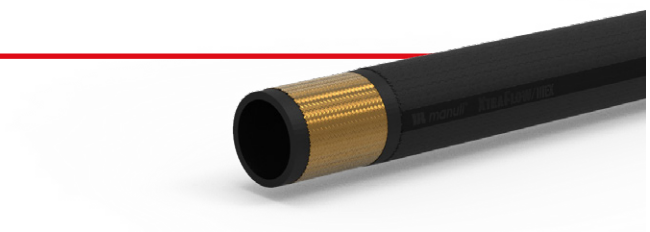
Manuli® Design

TYPE APPROVALS

CU-TR; MSHA; ABS; DNV-GL

XTRAFLOW/HTEX

HIGH TEMPERATURE SUCTION & RETURN LINES



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H01161063*	63	-40	2.1/2"	73.3	2.89	76.7	3.02	35	500	140	2,030	400	15.75	2,502	1.68	MF+M03400-40	

KEY FEATURES

- Vacuum resistance exceeding SAE 100R4 performance
- Extreme high temperature and heat aging resistance
- High flow rates
- Reduced bend radii compared to SAE 100R4
- Easier heat dissipation

APPLICATIONS & FLUIDS

- Suction and return lines in hydraulic systems with high temperature fluids, low pressure hydraulic systems in mining equipment.
- Mineral oils, glycols and polyglycols, transmission fluids, mineral oils in aqueous emulsion (up to 212°F 100°C), air with oil vapours.

CONTINUOUS SERVICE TEMPERATURE RANGE

-55 °C, -67 °F

135 °C, 275 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

One wire braid of high tensile steel wire

COVER

Black textile braid with high ozone, weather and heat resistance

APPLICABLE SPECS

Manuli® Design

manuli® HYDRAULICS

SPIRTEX/HT

HIGH PERFORMANCE R4 SUCTION AND DELIVERY HOSE



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H80003019*	19	-12	3/4"	-	-	28.5	1.12	25	360	100	1,450	80	3.15	530	0.36	MF+M00321-12	
H80003025*	25	-16	1"	-	-	35.0	1.38	25	360	100	1,450	100	3.94	672	0.45	MF+M00930-16	
H80003031*	31	-20	1.1/4"	-	-	42.0	1.65	17	250	70	1,010	130	5.12	836	0.56	MF+M00920-20	
H80003038*	38	-24	1.1/2"	-	-	48.5	1.91	17	250	70	1,010	170	6.69	1,098	0.74	MF+M00910-24	
H80003051*	51	-32	2"	-	-	61.5	2.42	10	150	42	600	200	7.87	1,408	0.95	MF+M00910-32	
H80003063*	63	-40	2.1/2"	-	-	75.0	2.95	10	150	42	600	235	9.25	2,250	1.51	MF+M03400-40	
H80003076*	76	-48	3"	-	-	87.5	3.44	7	100	28	400	300	11.81	2,703	1.82	MF+M03400-48	
H80003089*	89	-56	3.1/2"	-	-	103.0	4.06	5	70	21	300	350	13.78	3,683	2.47	MF+M03400-56	
H80003102*	102	-64	4"	-	-	114.5	4.51	5	70	21	300	400	15.75	3,937	2.65	MF+M03400-64	

KEY FEATURES

- Hardwall hose used for the suction and delivery of hydraulic oils
- Improved minimum bend radius
- Higher working pressure than SAE J517 100R4 spec.
- Long lasting in severe applications
- Resistance to Vacuum
- Special rubber compounds for high aging resistance
- Max. length: 60m

APPLICATIONS & FLUIDS

- Hydraulics: suction lines, return lines
- Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

135 °C, 275 °F

TUBE

Special synthetic rubber

REINFORCEMENT

High tensile synthetic cord, helix body wire

COVER

Weather and ozone resistant synthetic rubber, flame retardant with high heat resistance

APPLICABLE SPECS

SAE J517 100 R4, Manuli® Design; two-thirds the SAE J517 100R4 minimum bend radius

TYPE APPROVALS

CU-TR

manuli® HYDRAULICS

PUSHFIT

PUSH-ON HOSE



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H09066006*	6	-4	1/4"	0.0	0.00	12.7	0.50	35	500	140	2,030	76	2.99	130	0.09	PL-04	
H09066008*	8	-5	5/16"	0.0	0.00	14.3	0.56	35	500	140	2,030	76	2.99	155	0.10	PL-05	
H09066010*	10	-6	3/8"	0.0	0.00	15.8	0.62	35	500	140	2,030	76	2.99	175	0.12	PL-06	
H09066012*	12	-8	1/2"	0.0	0.00	19.6	0.77	25	360	100	1,450	127	5.00	235	0.16	PL-08	
H09066016*	16	-10	5/8"	0.0	0.00	23.6	0.93	25	360	100	1,450	150	5.91	320	0.22	PL-10	
H09066019*	19	-12	3/4"	0.0	0.00	26.2	1.03	21	300	84	1,210	180	7.09	340	0.23	PL-12	
H09066025*	25	-16	1"	0.0	0.00	33.0	1.30	14	200	56	810	240	9.45	455	0.31	PL-16	

KEY FEATURES

- Push-On hose with MF2000® Push-Lock insert Type without ferrule
- High aging resistance
- Robust assemblies (clamps recommended in long lasting mission profiles applications)
- High flexibility and easy routing

APPLICATIONS & FLUIDS

- Push-on hose for low pressure lines, return lines, drain lines. Used in various industrial applications, stationary and mobile equipment
- Mineral oils, vegetable and rape seed oils, glycol and polyglycol based oils, synthetic ester based oils, oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

100 °C, 212 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

One textile braid

COVER

Weather resistant synthetic rubber

APPLICABLE SPECS

Manuli® Design

TYPE APPROVALS

CU-TR


GHP
GLOBAL STD. ● HI-GRADE ● PREMIUM

manuli® HYDRAULICS

FOREMASTER/21

OUTSTANDING ABRASION RESISTANCE



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H01166A06*	6	-4	1/4”	10.2	0.40	12.0	0.47	210	3,040	840	12,180	50	1.97	177	0.12	MF+M00120-04	OPF-04
H01166A08*	8	-5	5/16”	11.5	0.45	13.6	0.54	210	3,040	840	12,180	55	2.17	207	0.14	MF+M00120-05	OPF-05
H01166A10*	10	-6	3/8”	14.4	0.57	16.4	0.65	210	3,040	840	12,180	65	2.56	301	0.20	MF+M00120-06	OPF-06
H01166A12*	12	-8	1/2”	18.1	0.71	20.3	0.80	210	3,040	840	12,180	90	3.54	441	0.30	MF+M00120-08	OPF-08
H01166A16*	16	-10	5/8”	22.2	0.87	24.2	0.95	210	3,040	840	12,180	100	3.94	616	0.41	MF+M00120-10	OPF-10
H01166A19*	19	-12	3/4”	25.6	1.01	27.7	1.09	210	3,040	840	12,180	120	4.72	761	0.51	MF+M00120-12	OPF-12
H01166A25*	25	-16	1”	33.0	1.30	35.2	1.39	210	3,040	840	12,180	150	5.91	1,172	0.79	MF+M00130-16	OPF-16

KEY FEATURES

- Extreme abrasion resistance
- Impact and scratch resistant cover
- Very low bend radius to suit restricted space installations
- Highly robust and compact hose structure compared to rated pressure
- High resistance to environmental agents
- Vacuum resistance according to SAE 100R4 requirements

APPLICATIONS & FLUIDS

- Low and medium pressure hydraulic lines with installation constraints, pilot lines, return, drain and suction lines
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-46 °C, -50 °F

121 °C, 250 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

One wire braid (DN 6-12). Two wire braid (DN 16-25)

COVER

R.O.C.
Synthetic rubber with extreme abrasion and ozone resistance

APPLICABLE SPECS

ISO 18752-C; Exceeds SAE J517 Type 100R17 & ISO 11237-R17

TYPE APPROVALS

MSHA

manuli® HYDRAULICS

FOREMASTER/28

OUTSTANDING ABRASION RESISTANCE



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H01167A06*	6	-4	1/4"	11.6	0.46	13.2	0.52	280	4,060	1,120	16,240	50	1.97	254	0.17	MF+M00120-04	OPF-04
H01167A08*	8	-5	5/16"	12.9	0.51	14.5	0.57	280	4,060	1,120	16,240	55	2.17	279	0.19	MF+M00120-05	OPF-05
H01167A10*	10	-6	3/8"	15.4	0.61	17.0	0.67	280	4,060	1,120	16,240	63	2.48	374	0.25	MF+M00120-06	OPF-06
H01167A12*	12	-8	1/2"	18.5	0.73	20.3	0.80	280	4,060	1,120	16,240	80	3.15	488	0.33	MF+M00120-08	OPF-08
H01167A16*	16	-10	5/8"	22.7	0.89	24.7	0.97	280	4,060	1,120	16,240	90	3.54	719	0.48	MF+M00120-10	OPF-10
H01167A19*	19	-12	3/4"	27.1	1.07	29.3	1.15	280	4,060	1,120	16,240	120	4.72	1,040	0.70	MF+M00120-12	OPK-12

KEY FEATURES

- Extreme abrasion resistance
- Impact and scratch resistant cover
- Very low bend radius to suit restricted space installations
- Highly robust and compact hose structure compared to rated pressure
- High resistance to environmental agents
- Vacuum resistance according to SAE 100R4 requirements

APPLICATIONS & FLUIDS

- Medium and high pressure hydraulic lines with installation constraints, pilot lines, return, drain and suction lines
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-46 °C, -50 °F

121 °C, 250 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Two high tensile wire braids

COVER

R.O.C.
Synthetic rubber with extreme abrasion and ozone resistance

APPLICABLE SPECS

ISO 18752-C; Exceeds SAE J517 Type 100R19 & ISO 11237-R19

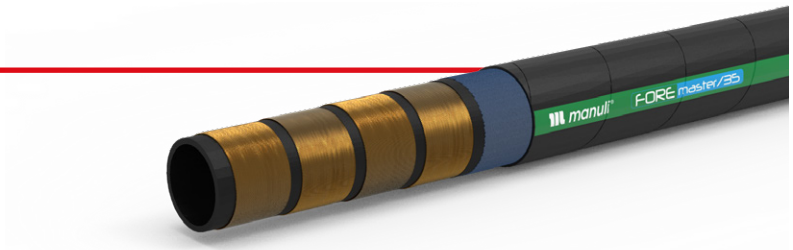
TYPE APPROVALS

MSHA

manuli® HYDRAULICS

FOREMASTER/35

EXTREME SCRATCHING RESISTANCE



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H10133010*	10	-6	3/8”	15.5	0.61	17.1	0.67	350	5,070	1,400	20,300	65	2.56	440	0.30	MF+M00120-06	
H10133012*	12	-8	1/2”	18.6	0.73	20.6	0.81	350	5,070	1,400	20,300	80	3.15	573	0.39	MF+M00120-08	
H10133019*	19	-12	3/4”	27.5	1.08	31.7	1.25	350	5,070	1,400	20,300	140	5.51	1,251	0.84	IP+M01500-12	SP+M05400-12
H10133025*	25	-16	1”	34.6	1.36	38.8	1.53	350	5,070	1,400	20,300	190	7.48	1,843	1.24	IP+M01500-16	SP+M05400-16
H10133031*	31	-20	1.1/4”	42.1	1.66	47.1	1.85	350	5,070	1,400	20,300	230	9.06	2,484	1.67	IP+M01500-20	
H10133038*	38	-24	1.1/2”	52.9	2.08	57.9	2.28	350	5,070	1,400	20,300	300	11.81	4,268	2.87	IP+M01600-24	
H10133051*	51	-32	2”	66.8	2.63	72.2	2.84	350	5,070	1,400	20,300	360	14.17	6,278	4.22	IP+M01800-32	

KEY FEATURES

- Extremely high abrasion resistance, long life before reinforcement scratching
- Special composite cover layer with textile reinforcement for maximum resistance in harsh environments
- Very low bend radius to suit restricted space installations
- Good flexibility across the whole temperature range
- Easy mounting in any installation
- Highly robust and compact hose structure compared to rated pressure
- High resistance to environmental agents
- High impulse resistance according to ISO 18752 requirements

APPLICATIONS & FLUIDS

- High pressure power lines for general hydraulics
- Designed for forestry machines, booms and harvester heads, harsh environments and severe abrasion
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-46 °C, -50 °F

121 °C, 250 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Four high tensile steel spirals

COVER

DN 10-12 - R.O.C.
Synthetic rubber with extreme abrasion and ozone resistance
DN 19 and larger - ARMOURED
Synthetic rubber composite cover with textile reinforcement, high abrasion and very high scratch resistance

APPLICABLE SPECS

Manuli® Design, ref. ISO 18752-C

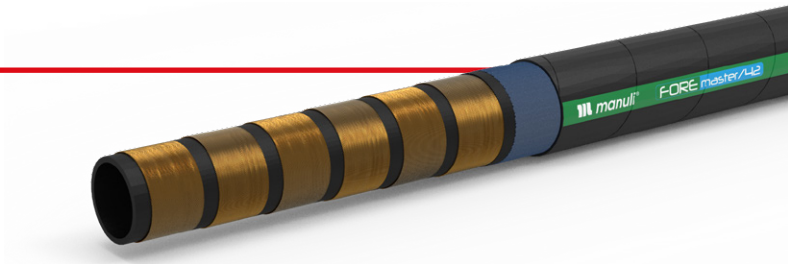
TYPE APPROVALS

MSHA; CU-TR

manuli® HYDRAULICS

FOREMASTER/42

EXTREME SCRATCHING RESISTANCE



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H10134006*	6	-4	1/4"	11.3	0.44	13.1	0.51	420	6,090	1,680	24,360	45	1.77	284	0.19		
H10134010*	10	-6	3/8"	17.6	0.69	20.0	0.78	420	6,090	1,680	24,360	100	3.93	684	0.46	MF+M00910-06	
H10134012*	12	-8	1/2"	20.3	0.79	22.7	0.89	420	6,090	1,680	24,360	120	4.72	797	0.54	MF+M00910-08	
H10134016*	16	-10	5/8"	23.9	0.94	26.4	1.03	420	6,090	1,680	24,360	140	5.51	982	0.66	MF+M01500-10	
H10134019*	19	-12	3/4"	27.7	1.09	31.9	1.26	420	6,090	1,680	24,360	150	5.91	1,356	0.91	IP+M01500-12	
H10134025*	25	-16	1"	34.8	1.37	39.0	1.54	420	6,090	1,680	24,360	210	8.27	2,079	1.40	IP+M01500-16	
H10134031*	31	-20	1.1/4"	42.2	1.66	46.5	1.83	420	6,090	1,680	24,360	260	10.24	2,474	1.66	IP+M01500-20	
H10134038*	38	-24	1.1/2"	53.2	2.09	58.2	2.29	420	6,090	1,680	24,360	310	12.20	4,536	1.40	IP+M01600-24	
H10134051*	51	-32	2"	68.9	2.71	73.5	2.89	420	6,090	1,680	24,360	500	19.69	7,325	4.92	IS+M02700-32	SPGX+M05500-32GX

KEY FEATURES

- Extremely high abrasion resistance, long life before reinforcement scratching
- Special composite cover layer with textile reinforcement for maximum resistance in harsh environments
- Very low bend radius to suit restricted space installations
- Good flexibility across the whole temperature range
- Easy mounting in any installation
- Highly robust and compact hose structure compared to rated pressure
- High resistance to environmental agents
- High impulse resistance according to ISO 18752 requirements

APPLICATIONS & FLUIDS

- High pressure power lines for general hydraulics
- Designed for forestry machines, booms and harvester heads, harsh environments and severe abrasion
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-46 °C, -50 °F

121 °C, 250 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Four high tensile steel spirals

COVER

DN 6-16 - R.O.C.
Synthetic rubber with extreme abrasion and ozone resistance
DN 19 and larger - ARMOURED
Synthetic rubber composite cover with textile reinforcement, high abrasion and very high scratch resistance

APPLICABLE SPECS

Manuli® Design, ref. ISO 18752-C

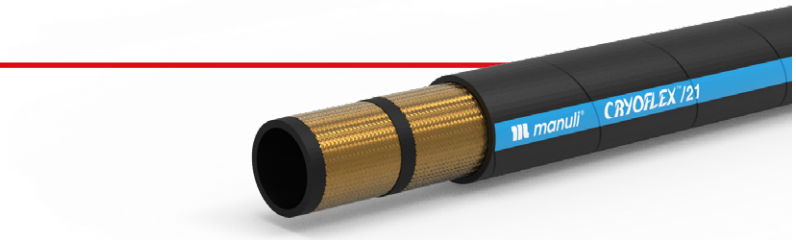
TYPE APPROVALS

MSHA; CU-TR

manuli® HYDRAULICS

CRYOFLEX/21

EXTREME COLD ENVIRONMENTS



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H01158016*	16	-10	5/8”	22.2	0,87	24.0	0.94	210	3,040	840	12,180	100	3.94	609	0.41	MF+M00120-10	OPF-10
H01158019*	19	-12	3/4”	25.6	1.01	27.7	1.09	210	3,040	840	12,180	120	4.72	765	0.51	MF+M00120-12	OPF-12
H01158025*	25	-16	1”	33.0	1.30	35.2	1.39	210	3,040	840	12,180	150	5.91	1,188	0.80	MF+M00130-16	OPF-16

KEY FEATURES

- Good flexibility at very low temperatures
- Reduced bend radius, according to compact hoses standard requirements
- Easy mounting in any installation
- High impulse resistance according to ISO 18752
- Weight saving vs. traditional hose construction
- No-skive fitting solution available
- Isobaric pressure rating for easy selection and product management

APPLICATIONS & FLUIDS

- Medium pressure hydraulic lines for general hydraulics in extreme cold environment
- Applications with installation constraints (short assemblies, compact spaces, low bend radii etc.)
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-60 °C, -76 °F

100 °C, 212 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

2 high tensile steel braids

COVER

STRONG - TYPE “SC”
Synthetic rubber with high abrasion, ozone, weather and heat resistance and an extended operational temperature range

APPLICABLE SPECS

ISO 18752-B Ext.

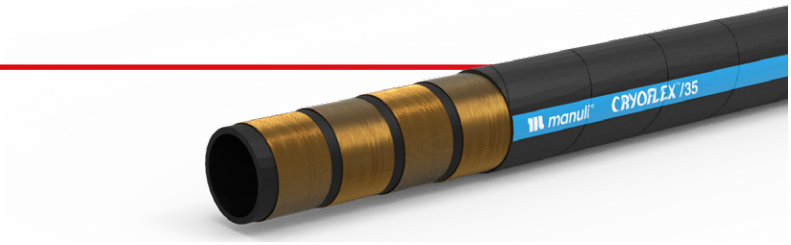
TYPE APPROVALS

MSHA; CU-TR

manuli HYDRAULICS

CRYOFLEX/35

EXTREME COLD ENVIRONMENTS



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H01159006*	6	-4	1/4”	11.3	0.44	13.1	0.52	350	5,070	1,400	20,300	45	1.77	285	0.19	MF+M00120-04	OPF-04
H01159006*	8	-5	5/16”	12.9	0.51	14.7	0.58	350	5,070	1,400	20,300	55	2.17	320	0.22	MF+M00120-05	OPF-05
H01159010*	10	-6	3/8”	15.0	0.59	16.8	0.66	350	5,070	1,400	20,300	65	2.56	390	0.26	MF+M00120-06	OPF-06
H01159012*	12	-8	1/2”	18.6	0.73	20.4	0.80	350	5,070	1,400	20,300	80	3.15	553	0.37	MF+M00120-08	OPF-08
H01159019*	19	-12	3/4”	27.5	1.08	29.9	1.18	350	5,070	1,400	20,300	120	4.72	1,212	0.81	IP+M01500-12	SP+M05400-12
H01159025*	25	-16	1”	34.6	1.36	37.0	1.46	350	5,070	1,400	20,300	150	5.91	1,773	1.19	IP+M01500-16	SP+M05400-16
H01159031*	31	-20	1.1/4”	42.1	1.66	44.9	1.77	350	5,070	1,400	20,300	230	9.06	2,335	1.57	IP+M01500-20	SP+M05400-20

KEY FEATURES

- Good flexibility at very low temperatures
- Bend radius which exceeds the standard requirements by -30% to -50%
- Easy mounting in any installation
- High impulse resistance according to ISO 18752
- Weight saving of 20% vs. traditional R13 hose construction
- No-skive fitting solution available
- Isobaric pressure rating for easy selection and product management

APPLICATIONS & FLUIDS

- High pressure hydraulic lines for general hydraulics in extreme cold environment
- Applications with installation constraints (short assemblies, compact spaces, low bend radii etc.)
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-60 °C, -76 °F

100 °C, 212 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

2 high tensile steel braids (DN 6-12). Four high tensile steel spirals (DN 19-31)

COVER

STRONG - TYPE “SC”
Synthetic rubber with high abrasion, ozone, weather and heat resistance and an extended operational temperature range

APPLICABLE SPECS

ISO 18752-B Ext.

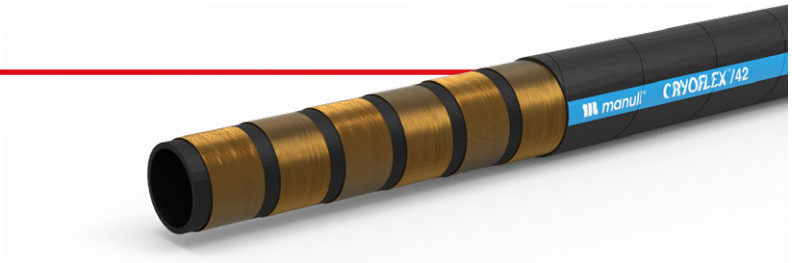
TYPE APPROVALS

MSHA; CU-TR

manuli® HYDRAULICS

CRYOFLEX/42

EXTREME COLD ENVIRONMENTS



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H10123019*	19	-12	3/4"	27.7	1.09	30.2	1.19	420	6,090	1,680	24,360	150	5.91	1,281	0.86	IP+M01500-12	SP+M05400-12
H10123025*	25	-16	1"	35.0	1.38	37.5	1.48	420	6,090	1,680	24,360	210	8.27	2,004	1.35	IP+M01500-16	SP+M05400-16
H10123031*	31	-20	1.1/4"	46.3	1.82	49.5	1.95	420	6,090	1,680	24,360	260	10.24	3,665	2.46	IP+M01600-20	
H10123051*	51	-32	2"	68.9	2.71	72.4	2.85	420	6,090	1,680	24,360	500	19.69	7,302	4.91	IS+M02700-32	

KEY FEATURES

- Good flexibility at very low temperatures
- Bend radius which exceeds the standard requirements by -30% to -50%
- Easy mounting in any installation
- High impulse resistance according to ISO 18752
- Weight saving of 20% vs. traditional R15 hose construction
- No-skive fitting solution available
- Isobaric pressure rating for easy selection and product management

APPLICATIONS & FLUIDS

- High pressure hydraulic lines for general hydraulics in extreme cold environment
- Applications with installation constraints (short assemblies, compact spaces, low bend radii etc.)
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-60 °C, -76 °F

100 °C, 212 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Four high tensile steel spirals (DN 19-25). Six high tensile steel spirals (DN 31-51)

COVER

STRONG - TYPE "SC"
Synthetic rubber with high abrasion, ozone, weather and heat resistance and an extended operational temperature range

APPLICABLE SPECS

ISO 18752-B Ext.

TYPE APPROVALS

MSHA; CU-TR

manuli HYDRAULICS

ANACONDA

HEAVY DUTY, LOW BENDING FORCE



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H10132019*	19	-12	3/4"	27.7	1.09	30.2	1.19	420	6,090	1,680	24,360	150	5.91	1,288	0.87	IP+M01500-12	SP+M05400-12
H10132025*	25	-16	1"	35.3	1.39	37.7	1.48	420	6,090	1,680	24,360	210	8.27	2,012	1.35	IP+M01500-16	SP+M05400-16
H10132031*	31	-20	1.1/4"	42.2	1.66	45.5	1.79	420	6,090	1,680	24,360	260	10.24	2,453	1.65	IP+M01500-20	SP+M05400-20
H10132038*	38	-24	1.1/2"	52.5	2.07	55.5	2.19	420	6,090	1,680	24,360	300	11.81	4,076	2.74	IP+M01600-24	
H10132A38* †	38	-24	1.1/2"	50.4	1.98	53.4	2.10	350	5,070	1,400	20,300	300	11.81	3,269	2.19	IP+M01600-24	

† Compact hose

KEY FEATURES

- Low bending force to suit difficult undercarriage installations
- Bend radius which exceeds the standard requirements
- Good flexibility across the whole temperature range
- Easy mounting in static configurations
- High impulse resistance according to ISO 18752
- No-skive fitting solution available
- Isobaric pressure rating for easy selection and product management

APPLICATIONS & FLUIDS

- High pressure hydraulic lines in hydrostatic transmissions
- Applications with installation constraints, short assemblies in static configurations, low bend radii in undercarriage applications
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-46 °C, -50 °F

121 °C, 250 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Four high tensile steel spirals (six high tensile steel spirals DN 38 standard version)

COVER

STRONG - TYPE "SC"
Synthetic rubber with high abrasion, ozone, weather and heat resistance and an extended operational temperature range

APPLICABLE SPECS

ISO 18752 Grade C, exceeds SAE J517 R15, ISO 3862 R15

TYPE APPROVALS

MSHA; CU-TR

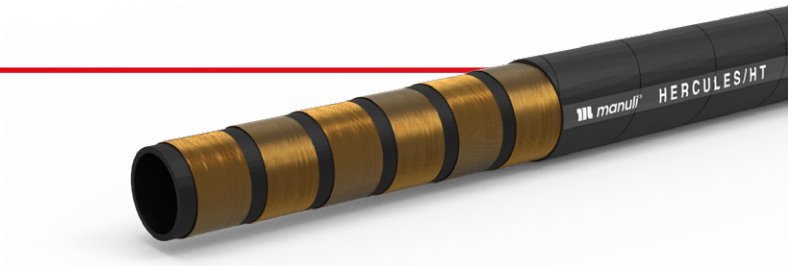
REMARKS

- *Sizes -12 and -16 are qualified to reduced bend radius with Interlock Plus fitting solution*
  -12: MBR = 110mm
  -16: MBR = 150mm

manuli® HYDRAULICS

HERCULES/HT

HEAVY DUTY FOR GIANT EQUIPMENT



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H10125031*	31	-20	1,1/4"	47.7	1.88	50.9	2.00	420	6,090	1,680	24,360	400	15.75	4,175	2.81	IP+M01850-20	
H10125038*	38	-24	1.1/2"	55.2	2.17	58.7	2.31	420	6,090	1,680	24,360	450	17.72	5,195	3.49	IS+M02700-24	
H10125051*	51	-32	2"	68.9	2.71	72.4	2.85	420	6,090	1,680	24,360	500	19.69	7,265	4.88	IS+M02700-32	

KEY FEATURES

- Robustness and durability - longer than 1 year on "hump hose" applications
- Bend radius exceeds standard requirements by -30% to -50%
- Good flexibility across the whole temperature range
- Easy mounting in any installation
- High impulse resistance according to ISO 18752
- Isobaric pressure rating for easy selection and product management

APPLICATIONS & FLUIDS

- High pressure power lines for general hydraulics
- Heavy duty power lines
- Hump hoses on giant excavators
- Long durability due to special tube compound
- Applications with long assemblies with self-standing capacity
- Applications with installation constraints (short assemblies, compact spaces, low bend radii etc.)
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-46 °C, -50 °F

135 °C, 275 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Six high tensile steel wire spirals

COVER

STRONG - TYPE "SC"
Synthetic rubber with high abrasion, ozone, weather and heat resistance and an extended operational temperature range

APPLICABLE SPECS

ISO 18752-D Ext., exceeds SAE J517 R15

TYPE APPROVALS

MSHA; CU-TR

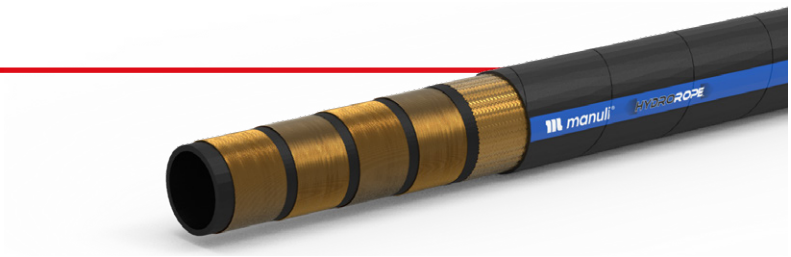
REMARKS

- *Hercules/HT is enhanced by new HSSL heat shrinkable sleeves (optional). These heat shrinkable sleeves protect the ferrule from dirt inclusion and moisture ingression under the ferrule. Sleeves are made with heat shrinkable material, which is self-extinguishing and provides low voltage electrical insulation, provide the best possible protection with high abrasion resistance.*

manuli® HYDRAULICS

HYDROROPE

OUTSTANDING TENSILE STRENGTH



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H10136025*	25	-16	1	38.2	1.50	41.4	1.63	420	6,090	1,680	24,360	400	15.51	2,910	1.95	IP+M01850-16	
H10136031*	31	-20	1.1/4"	46.9	1.85	50.1	1.97	420	6,090	1,680	24,360	450	17.72	3,749	2.52	IP+M01600-20	
H10136A38*†	38	-24	1.1/2"	53.2	2.09	56.5	2.22	350	5,076	1,400	20,305	500	19.65	4,256	2.86	IP+M01600-24	
H10136038*	38	-24	1.1/2"	54.7	2.15	57.3	2.26	420	6,090	1,680	24,360	600	23.62	4,650	3.12	IS+M02700-24	
H10136051*	51	-32	2"	69.2	2.72	72.4	2.85	420	6,090	1,680	24,360	800	31.50	6,590	4.42	IS+M02700-32	
H10136063*	63	-40	2.1/2"	84.1	3.31	87.3	3.44	380	5,511	1,520	22,045	900	35.43	9,405	6.31	IP+M01900-40	
H10136076*	76	-48	3"	97.1	3.82	100.2	3.94	350	5,076	1,400	20,305	1000	39.37	11,106	7.46	IS+M02700-48	

† Compact hose

KEY FEATURES

- Designed to resist pulling force
- High pressure resistance
- Superior abrasion resistance
- High ozone and weather resistance
- Flame resistance to a wide range of specs
- Anti-static and anti-toxic cover

APPLICATIONS & FLUIDS

- Heavy duty power lines in severe environmental conditions
- Specific installations with tough abrasion conditions
- Off-shore applications, underground and open-pit mining, special machines where hose high pulling resistance is required (grabs, etc.)
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-46 °C, -50 °F

121 °C, 250 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Four (DN 25, 31, DN 38 Compact) and six (DN 38, DN 76) high tensile steel spirals + One high tensile steel wire braid

COVER

STRONG - TYPE “SC”
Synthetic rubber with high abrasion, ozone, weather and heat resistance and an extended operational temperature range

APPLICABLE SPECS

Manuli® Design

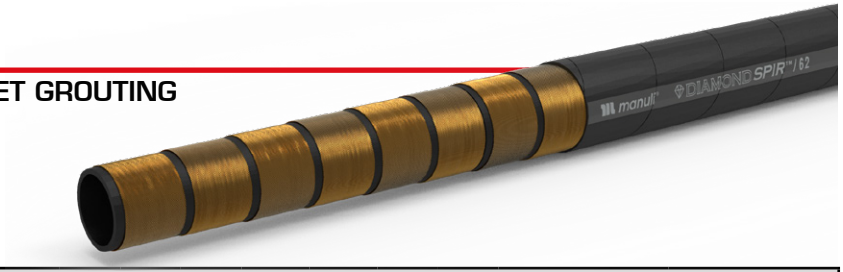
TYPE APPROVALS

MSHA; CU-TR;

manuli® HYDRAULICS

DIAMONDSPIR/62

VERY HIGH PRESSURE HYDRAULICS & JET GROUTING



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H10118031*	31	-20	1.1/4"	51.2	2.02	54.4	2.14	621	9,005	2,484	36,018	600	23.62	5,638	3.79	IP+M01900-20	
H10118038*	38	-24	1.1/2"	59.3	2.33	63.2	2.49	621	9,005	2,484	36,018	800	31.50	7,100	4.77	IS+M02900-24	

KEY FEATURES

- Extremely robust structure for liquid concrete high pressure pumping, with safety factor 4:1
- Double-skive reliable fittings, also available in stainless steel
- Approved for very high pressure hydraulics with ISO 6803 fatigue test (200,000 cycles, T=100°C, WP)

APPLICATIONS & FLUIDS

- Liquid concrete, bentonite, for jet grouting (very high pressure)
- Hydraulic oils (heavy duty, high pressure)
- Water-based hydraulic oils, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

100 °C, 212 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Multiple high tensile wire spirals

COVER

STRONG - TYPE “SC”
Synthetic rubber with high abrasion, ozone, weather and heat resistance and an extended operational temperature range

APPLICABLE SPECS

ISO 18752 Grade A Ext., EN 16228-6: safety factor 4:1

TYPE APPROVALS

MSHA; CU-TR

manuli HYDRAULICS

GOLDENGUARD/3000

EMERGENCY HYDRAULIC SYSTEMS & BOP



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H11022019*	19	-12	3/4"	26.9	1.06	32.3	1.27	207	3,000	828	12,000	180	7.09	1,288	0.87	OPK-12	
H11022025*	25	-16	1"	34.1	1.34	40.1	1.58	207	3,000	828	12,000	230	9.06	1,876	1.26	OPK-16	

KEY FEATURES

- Highly robust hose structure
- Thermal insulation of the hose with a special cover material
- Long lasting resistance of the cover layer
- Cover has flame retardant properties
- High ozone and weather resistance

APPLICATIONS & FLUIDS

- Hydraulics: designed for use in areas where the continuous hydraulic function is required to drive the emergency systems (industrial, marine, off-shore and refineries, defence, mining)
- Flexible hose for hydraulic systems of Blow Out Preventer control lines on drilling rigs
- Mineral oils, glycols and polyglycols, mineral oils in aqueous emulsion

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

121 °C, 250 °F

TUBE

High grade NBR oil resistant synthetic rubber

REINFORCEMENT

Four high tensile steel wire spirals

COVER

Red insulant and flame retardant synthetic rubber

APPLICABLE SPECS

API 16D Fire Test (pr.10.1.2), ISO 18752-C

TYPE APPROVALS

DNV-GL; CU-TR; MSHA; API 16D Fire Test (DNV); LR; CCS; ABS

REMARKS

- *Refer to GoldenGuard assembling instructions and crimp chart for correct assembling (partial skive required)*

manuli HYDRAULICS

GOLDENGUARD/5000

EMERGENCY HYDRAULIC SYSTEMS & BOP



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H11020010*	10	-6	3/8”	16.7	0.66	20.7	0.81	345	5,000	1,380	20,010	127	5.00	651	0.44	MF+M00910-06	OPK-06
H11020012*	12	-8	1/2”	20.1	0.79	24.1	0.95	345	5,000	1,380	20,010	150	5.91	820	0.55	MF+M00910-08	OPK-08
H11020016*	16	-10	5/8”	25.5	1.00	30.9	1.22	345	5,000	1,380	20,010	180	7.09	1,490	1.00	IP+M01500-10	
H11020019*	19	-12	3/4”	29.0	1.14	36.2	1.43	345	5,000	1,380	20,010	240	9.45	2,024	1.36	IP+M01500-12	SP+M05400-12
H11020025*	25	-16	1”	36.0	1.42	44.0	1.73	345	5,000	1,380	20,010	300	11.81	2,742	1.84	IP+M01500-16	SP+M05400-16
H11020031*	31	-20	1.1/4”	47.0	1.85	55.0	2.17	345	5,000	1,380	20,010	420	16.54	4,293	2.88	IP+M01600-20	SP+M05500-20
H11020038*	28	-24	1.1/2”	54.6	2.15	62.6	2.46	345	5,000	1,380	20,010	500	19.69	5,531	3.72	IP+M01600-24	SP+M05500-24
H11020051*	51	-32	2”	68.4	2.69	76.4	3.01	345	5,000	1,380	20,010	630	24.80	7,712	5.18	IP+M01800-32	SP+M05500-32

KEY FEATURES

- Highly robust hose structure
- Thermal insulation of the hose with a special cover material
- Long lasting resistance of the cover layer
- Cover has flame retardant properties
- High ozone and weather resistance

APPLICATIONS & FLUIDS

- Hydraulics: designed for use in areas where the continuous hydraulic function is required to drive the emergency systems (industrial, marine, off-shore and refineries, defence, mining)
- Flexible hose for hydraulic systems of Blow Out Preventer control lines on drilling rigs
- Mineral oils, glycols and polyglycols, mineral oils in aqueous emulsion

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

121 °C, 250 °F

TUBE

High grade NBR oil resistant synthetic rubber

REINFORCEMENT

Multiple plies of high tensile steel wire spirals (DN 16-25); 2 wire braids (DN 10-12)

COVER

Red insulant and flame retardant synthetic rubber

APPLICABLE SPECS

API 16D Fire Test (pr.10.1.2), DN 10-12: ISO 18752-A; DN 16-51: ISO 18752-C (STD2 fitting) and Type C “Plus” (STD1 fiting), ISO 3862 & SAE J517-100R13 performance

TYPE APPROVALS

DNV-GL; CU-TR; MSHA; API 16D Fire Test (DNV); LR; CCS; ABS

REMARKS

- *Refer to GoldenGuard assembling instructions and crimp chart for the use of accessories when required:*
  - STD1 fitting solution: Fire sleeve & metal sleeve over the fitting area required
  - STD2 fitting solution: No accessories required
- *The STD1 fitting solution has been selected for the most demanding applications*
- *DN 10 & 12: Max. continuous temperature 100 °C for these wire braided references*

manuli HYDRAULICS

GOLDENARMOUR

EMERGENCY HYDRAULIC SYSTEMS & BOP



TECHNICAL DATA

PART REF.	HOSE TYPE	HOSE SIZE			MAX. W.P		BURST		PROOF TEST		FITTINGS	ACCESSORIES
		DN	dash	inch	bar	psi	bar	psi	bar	psi		Armour Guard
H01101010*	ROCKMASTER/2PLUS	10	-6	3/8”	345	5,000	1,380	20,000	690	10,000	MF+IM00910-06	JP45G090280099
H01101012*	ROCKMASTER/2PLUS	12	-8	1/2”	345	5,000	1,380	20,000	690	10,000	MF+IM00910-08	JP45G090320099
H10044016*	ROCKMASTER/4SH	16	-10	5/8”	345	5,000	1,380	20,000	690	10,000	IP+IM01500-10	JP45G090400099
H10035019*	ROCKMASTER/13	19	-12	3/4”	345	5,000	1,380	20,000	690	10,000	IP+IM01500-12	JP45G090450099
H10035025*	ROCKMASTER/13	25	-16	1”	345	5,000	1,380	20,000	690	10,000	IP+IM01500-16	JP45G090500099
H10035032*	ROCKMASTER/13	31	-20	1.1/4”	345	5,000	1,380	20,000	690	10,000	IP+IM01600-20	JP45G090650099
H10035040*	ROCKMASTER/13	38	-24	1.1/2”	345	5,000	1,380	20,000	690	10,000	IP+IM01600-24	JP45G090750099
H10035051*	ROCKMASTER/13	51	-32	2”	345	5,000	1,380	20,000	690	10,000	IP+IM01800-32	JP45G090900099

KEY FEATURES

- Highly robust hose structure
- Thermal insulation of the hose with a stainless steel armour cover
- Long lasting resistance of the cover layer
- Flame retardant properties
- High ozone and weather resistance

APPLICATIONS & FLUIDS

- Hydraulics: designed for use in areas where the continuous hydraulic function is required to drive the emergency systems (industrial, marine, off-shore and refineries, defence, mining)
- Flexible hose for hydraulic systems of Blow Out Preventer control lines on drilling rigs
- Mineral oils, glycol and polyglycol based oils, mineral oils in aqueous emulsion

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

100 °C, 212 °F (DN 10-12); 121 °C, 250 °F DN 16-51

TUBE

High grade NBR oil resistant synthetic rubber

REINFORCEMENT

Two high tensile steel braids (DN 10-12); Multiple plies of high tensile steel spirals (DN 16-51)

COVER

STRONG - TYPE “SD”
Synthetic rubber with high abrasion, ozone, weather and heat resistance

APPLICABLE SPECS

API 16D Fire Test (pr.10.1.2);
ISO 18752-A (DN 10-12);
ISO 18752-C, ISO 3862, SAE J517 Type 100R13 performance (DN 16-51)

TYPE APPROVALS

DNV-GL; LR; API 16D Fire Test (DNV); ABS; CCS; CU-TR

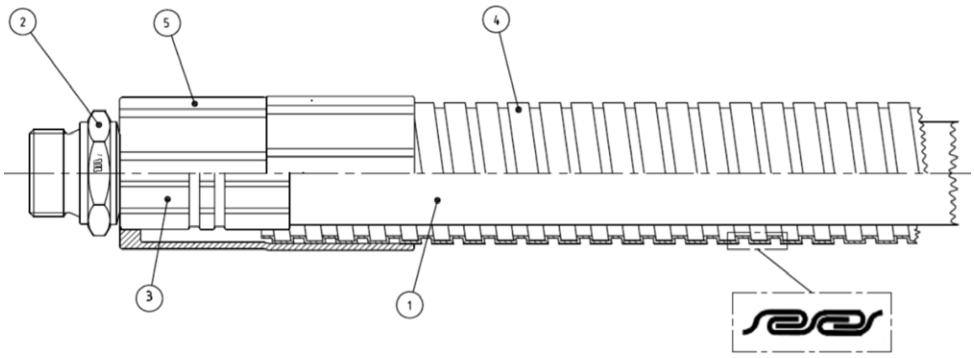
REMARKS

- *Refer to GoldenArmour assembling instructions and crimp chart for the correct assembly of the hose*
- *Hose Assembly Branding: The GoldenArmour assembly must report at least the following information in the hose brand:*
  - inch size - WP 5,000 psi (on the metal sleeve)
  - assembling date - assembler identification (additional tag or on the metal sleeve

GOLDENARMOUR

EMERGENCY HYDRAULIC SYSTEMS & BOP

GOLDENARMOUR MAKE-UP



1. *Hydraulic hose*
2. *Hydraulic MF2000 insert type, with additional tail o-ring only for IP fitting solution*
3. *Hydraulic MF2000 ferrule type*
4. *External flexible Metal Armour (interlocked flexible metal hose)*
5. *Metal Sleeve*

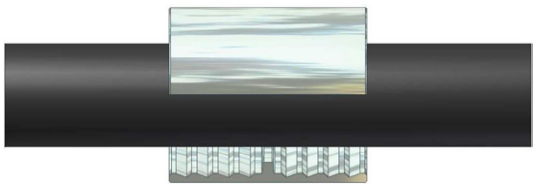
ACCESSORIES TECHNICAL DATA

ARMOUR PART REF.	TO SUIT HOSE SIZE			ARMOUR SIZE				MIN. BEND		WEIGHT		METAL SLEEVE			ARMOUR JOINT		
				d		D						PART REF.	D	L	PART REF.	D	L
	DN	dash	inch	mm	inch	mm	inch	mm	inch	g/m	lb/ft		mm	mm		mm	mm
JP45G090280099	10	-6	3/8”	25	1”	32.0	1.26	127	5.00	565	0.38	IO82110-06GA	40.5	60	IO84210-06	40.5	65
JP45G090320099	12	-8	1/2”	31	1.1/4”	36.5	1.44	150	5.91	703	0.47	IO82110-08GA	46.8	75	IO84210-08	46.8	65
JP45G090400099	16	-10	5/8”	38	1.1/2”	44.5	1.75	180	7.09	939	0.63	IO82110-10GA	53.2	90	IO84210-10	53.2	65
JP45G090450099	19	-12	3/4”	46	1.3/4”	51.0	2.01	240	9.45	1,118	0.75	IO82110-12GA	59.5	105	IO84210-12	59.5	70
JP45G090500099	25	-16	1”	51	2”	57.5	2.26	300	11.81	1,301	0.87	IO82110-16GA	66.0	120	IO84210-16	66.0	75
JP45G090650099	31	-20	1.1/4”	63	2.1/2”	70.0	2.76	420	16.54	1,636	1.10	IO82110-20GA	78.6	135	IO84210-20	78.6	95
JP45G090750099	38	-24	1.1/2”	76	3”	82.5	3.27	500	19.69	1,920	1.29	IO82110-24GA	91.5	150	IO84210-24	91.5	105
JP45G090900099	51	-32	2”	89	3.1/2”	96.0	3.78	630	24.80	2,386	1.60	IO82110-32GA	106.5	165	IO84210-32	106.5	115

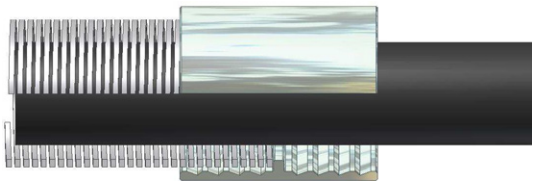
ARMOUR JOINING PROCEDURE

Individual pieces of the GoldenArmour metal sleeve can be joined using a dedicated Armour Joint. The procedure for joining the pieces of flexible armour is as follows:

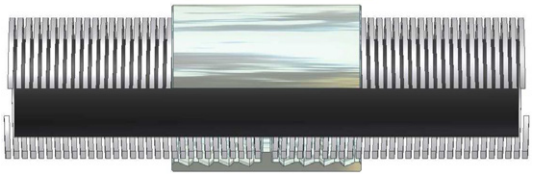
1. Slide the Armour Joint onto the hose.



2. Insert the first piece of flexible armour into the Armour Joint until it reaches the internal stop.



3. Insert the second piece of flexible armour into the other side of the Armour Joint until it also reaches the internal stop



manuli HYDRAULICS

SAFEMASTER/2SC

RAILWAY - EN 45545-2



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H01162006*	6	-4	1/4"	11.3	0.44	13.1	0.52	400	5800	1850	26830	45	1.77	290	0.19	MF+M03300-04	OPF-04
H01162008*	8	-5	5/16"	12.9	0.51	14.7	0.58	350	5070	1700	24650	55	2.17	322	0.22	MF+M03300-05	OPF-05
H01162010*	10	-6	3/8"	15.0	0.59	16.8	0.66	330	4780	1500	21750	65	2.56	388	0.26	MF+M03300-06	OPF-06
H01162012*	12	-8	1/2"	18.5	0.73	20.3	0.80	275	3980	1220	17690	80	3.15	496	0.33	MF+M03300-08	OPF-08
H01162016*	16	-10	5/8"	21.8	0.86	23.6	0.93	250	3620	1050	15220	90	3.54	615	0.41	MF+M03400-10	OPF-10
H01162019*	19	-12	3/4"	25.6	1.01	27.6	1.09	245	3550	980	14210	120	4.72	788	0.53	MF+M03400-12	OPF-12
H01162025*	25	-16	1"	33.0	1.30	35.2	1.39	210	3040	840	12180	150	5.91	1188	0.80	MF+M03400-16	OPF-16

KEY FEATURES

- Compactness and flexibility
- Good abrasion resistance
- High ozone and weather resistance
- Cover has flame retardant properties
- Cover has low density smoke when burning (EN 45545-2)
- Over-standard working pressures

APPLICATIONS & FLUIDS

- Hydraulics: medium-high pressure lines in severe environmental conditions, specific installations with tough abrasion conditions, railway hydraulic applications
- Mineral oils, vegetable and rape seed oils and synthetic ester based oils, glycols and polyglycols, oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

100 °C, 212 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Two high tensile steel wire braids

COVER

Synthetic rubber with high ozone, weather and heat resistance and flame retardant properties

APPLICABLE SPECS

Exceeds EN 857 2SC; SAE 100R16; ISO 11237 2SC/R16

TYPE APPROVALS

EN 45545-2; CU-TR

manuli® HYDRAULICS

SAFEMASTER/2SN

RAILWAY - EN 45545-2



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H01165006*	6	-4	1/4"	12.7	0.50	14.7	0.58	400	5800	1750	25380	50	1.97	356	0.24	MF+M03400-04	OPF-04
H01165008*	8	-5	5/16"	14.3	0.56	16.3	0.64	350	5070	1480	21460	60	2.36	394	0.26	MF+M03400-05	OPF-05
H01165010*	10	-6	3/8"	16.7	0.66	18.7	0.74	350	5070	1400	20300	70	2.76	520	0.35	MF+M03400-06	OPF-06
H01165012*	12	-8	1/2"	19.8	0.78	21.8	0.86	350	5070	1400	20300	89	3.50	651	0.44	MF+M03450-08	OPF-08
H01165016*	16	-10	5/8"	23.0	0.91	25.0	0.98	250	3620	1020	14790	100	3.94	713	0.48	MF+M03400-10	OPF-10
H01165019*	19	-12	3/4"	27.0	1.06	29.0	1.14	215	3110	900	13050	130	5.12	910	0.61	MF+M03400-12	OPF-12
H01165025*	25	-16	1"	34.8	1.37	36.8	1.45	175	2530	670	9710	160	6.30	1256	0.84	MF+M03400-16	OPF-16
H01165031*	31	-20	1.1/4"	44.3	1.74	47.0	1.85	140	2030	600	8700	419	16.50	1898	1.28	MF+M03400-20	OPK-20
H01165038*	38	-24	1.1/2"	50.7	2.00	53.4	2.10	100	1450	500	7250	500	19.69	2227	1.50	MF+M03400-24	OPK-24

KEY FEATURES

- Good abrasion resistance
- High ozone and weather resistance
- Cover has flame retardant properties
- Cover has low density smoke when burning (EN 45545-2)
- Over-standard working pressures

APPLICATIONS & FLUIDS

- Hydraulics: medium-high pressure lines in severe environmental conditions, specific installations with tough abrasion conditions, railway hydraulic applications
- Mineral oils, vegetable and rape seed oils and synthetic ester based oils, glycols and polyglycols, oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

100 °C, 212 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Two high tensile steel wire braids

COVER

Synthetic rubber with high ozone, weather and heat resistance and flame retardant properties

APPLICABLE SPECS

Exceeds EN 853 2SN; SAE 100 R2AT; ISO 1436 2SN/R2AT

TYPE APPROVALS

EN 45545-2; CU-TR

manuli® HYDRAULICS

T°REX

EXTREME TEMPERATURE



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H01127031*	31	-20	1.1/4"	0.0	0.00	40.7	1.60	43	620	172	2,490	203	7.99	925	0.62	MF+M00110-20TX	

KEY FEATURES

- Extreme high temperature and aging resistance
- High flexibility
- Long service duration

APPLICATIONS & FLUIDS

- Oil cooling systems, automatic transmissions with very high temperature of the oil, low pressure high temperature applications in hydraulic systems.
- Mineral oils, Synthetic Hydrocarbons oils, glycols and polyglycols (up to 121°C, 250°F)

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

160 °C, 320 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

One high tensile steel wire braid

COVER

Synthetic rubber with extremely high heat resistance

APPLICABLE SPECS

Manuli® Design

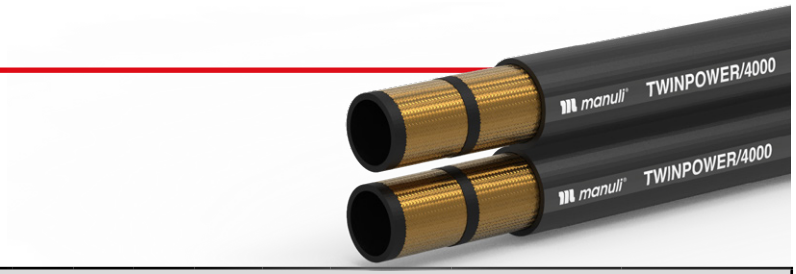
TYPE APPROVALS

CU-TR

manuli® HYDRAULICS

TWINPOWER 4000

EASY INSTALLATION FOR OEMS



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H01119010*	10	-6	3/8"	15.4	0.61	18.0	0.71	280	4,060	1,120	16,240	65	2.56	830	0.56	MF+M00120-06	
H01119012*	12	-8	1/2"	18.5	0.73	21.5	0.85	280	4,060	1,120	16,240	80	3.15	1,100	0.74	MF+M00120-08	

KEY FEATURES

- Compact hose structure and reduced bend radius
- Isobaric rating for easy selection
- Smooth cover hose ensuring user friendly installation inside the booms
- Unique hose assembly solution for pressure and discharge line on the same body valve
- Reduced installation time compared to two separated assembly hose solutions
- Reduced risk of abrasion of the line inside the booms due to twin hose alignment
- Elimination of clamps to connect the two hose lines, with consequent easiness of insertion
- Warehouse/logistic optimization with reduced codes in stock

APPLICATIONS & FLUIDS

- Hydraulics: hose range dedicated to aerial lifts, platforms, forklift trucks and telescopic booms applications
- Mineral oils, vegetable oils and synthetic ester based oils, glycols and polyglycols, mineral oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

100 °C, 212 °F

TUBE

Synthetic rubber

REINFORCEMENT

Two high tensile steel wire braids

COVER

Weather resistant synthetic rubber

APPLICABLE SPECS

DN 10: ISO 11237 R19; SAE J517 Type100R19. DN 12: ISO 11237 2SC; EN 857 2SC, SAE J517 Type 100R16

TYPE APPROVALS

CU-TR

manuli HYDRAULICS

TWINPOWER 5000

EASY INSTALLATION FOR OEMS



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H01120008*	8	-5	5/16"	12.9	0.51	15.3	0.60	350	5,070	1,400	20,300	55	2.17	682	0.46	MF+M00120-05	
H01120010*	10	-6	3/8"	15.0	0.59	17.6	0.69	350	5,070	1,400	20,300	65	2.56	830	0.56	MF+M00120-06	
H01120012*	12	-8	1/2"	18.6	0.73	21.6	0.85	350	5,070	1,400	20,300	80	3.15	1,190	0.80	MF+M00120-08	

KEY FEATURES

- Compact hose structure and reduced bend radius
- Isobaric rating exceeding international specifications
- Smooth cover hose ensuring user friendly installation inside the booms
- Unique hose assembly solution for pressure and discharge line on the same body valve
- Reduced installation time compared to two separated assembly hose solutions
- Reduced risk of abrasion of the line inside the booms due to twin hose alignment
- Elimination of clamps to connect the two hose lines, with consequent easiness of insertion
- Higher abrasion resistant and flame retardant MSHA approved cover
- Warehouse/logistic optimization with reduced codes in stock

APPLICATIONS & FLUIDS

- Hydraulics: hose range dedicated to aerial lifts, platforms, forklift trucks and telescopic booms applications
- Mineral oils, vegetable oils and synthetic ester based oils, glycols and polyglycols, mineral oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

100 °C, 212 °F

TUBE

Synthetic rubber

REINFORCEMENT

Two high tensile steel wire braids

COVER

STRONG - TYPE “SD”
Synthetic rubber with high abrasion, ozone, weather and heat resistance

APPLICABLE SPECS

Exceeds ISO 11237 2SC/R16; EN 857 2SC; SAE J517 Type 100R16

TYPE APPROVALS

CU-TR; MSHA

manuli® HYDRAULICS

TWINPOWER/PLUS

EASY INSTALLATION FOR OEMS



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H01112A12*	12	-8	1/2"	18.5	0.73	22.5	0.89	310	4,490	1,240	17,980	80	3.15	1,220	0.82	MF+M00120-08	
H01112016*	16	-10	5/8"	22.7	0.89	26.3	1.04	280	4,060	1,120	16,240	90	3.54	1,640	1.10	MF+M00120-10	

KEY FEATURES

- Compact hose structure and reduced bend radius
- Approved with 500.000 flexing impulse cycles (1,33 WP), 125.000 flexing cycles (Manuli® testing method)
- Smooth hose cover ensuring user friendly installation inside the booms
- Unique hose assembly solution for pressure and discharge line on the same body valve
- Reduced installation time compared to two separated assembly hose solutions
- Reduced risk of abrasion of the line inside the booms due to twin hose alignment
- Elimination of clamps to connect the two hose lines, with consequent easiness of insertion
- Higher abrasion resistant and flame retardant MSHA approved cover
- Warehouse/logistic optimization with reduced codes in stock

APPLICATIONS & FLUIDS

- Hydraulics: hose range dedicated to aerial lifts, platforms, forklift trucks and telescopic booms applications
- Mineral oils, vegetable oils and synthetic ester based oils, glycols and polyglycols, mineral oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

121 °C, 250 °F

TUBE

Synthetic rubber

REINFORCEMENT

Two high tensile steel braids

COVER

STRONG - TYPE “SD”
Synthetic rubber with high abrasion, ozone, weather and heat resistance

APPLICABLE SPECS

Exceeds ISO 11237 2SC/R16; EN 857 2SC; SAE J517 Type 100R16

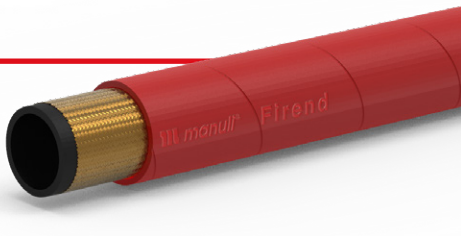
TYPE APPROVALS

CU-TR; MSHA

manuli HYDRAULICS

FIREND

FIRE SUPPRESSION SYSTEMS



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H01124006*	6	-4	1/4"	11.0	0.43	13.0	0.51	225	3,260	900	13,050	100	3.94	220	0.15	MF+M03400-04	OPF-04
H01124010*	10	-6	3/8"	15.0	0.59	17.0	0.67	180	2,610	720	10,440	127	5.00	325	0.22	MF+M03400-06	OPF-06
H01124012*	12	-8	1/2"	18.1	0.71	20.1	0.79	160	2,320	640	9,280	178	7.01	410	0.28	MF+M03400-08	OPF-08
H01124019*	19	-12	3/4"	25.3	1.00	27.9	1.10	105	1,520	420	6,090	240	9.45	660	0.44	MF+M03400-12	OPF-12
H01124025*	25	-16	1"	33.1	1.30	35.7	1.41	88	1,270	350	5,070	300	11.81	980	0.66	MF+M03400-16	

KEY FEATURES

- SAE 100R1AT and ISO-1SN rated working pressures
- Flame retardant red cover
- Excellent performance for standard hydraulic applications
- Embossed indelible branding
- No skive MF2000 (two-pieces) and MF3000 (one-piece) fittings

APPLICATIONS & FLUIDS

- Use in fire suppression systems of off-road vehicles, mining equipment, stationary engines. The hose present red cover for easy identification in the fire suppression system
- Mineral oils, vegetable oils and synthetic ester based oils, glycols and polyglycols, mineral oils in aqueous emulsion, water, water based fire extinguishing agents

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

100 °C, 212 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

One high tensile steel wire braid

COVER

Red synthetic rubber with high ozone, abrasion and weather resistance

APPLICABLE SPECS

ISO 1436-1SN; SAE J517 Type 100R1AT; EN 853-1SN

TYPE APPROVALS

MSHA; CU-TR

manuli® HYDRAULICS

LUBEMASTER

LUBRICATION LINE



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H01135006*	6	-4	1/4"	10.2	0.40	12.0	0.47	210	3,040	840	12,180	50	1.97	180	0.12	MF+M03300-04	OPF-04
H01135010*	10	-6	3/8"	14.4	0.57	16.2	0.64	210	3,040	840	12,180	65	2.56	300	0.20	MF+M03300-06	OPF-06

KEY FEATURES

- Designed for applications with lubrication and transmission fluids
- Compact hose structures for installations in narrow spaces
- Isobaric pressure rating

APPLICATIONS & FLUIDS

- Lubrication lines, auxiliary systems with transmission oils
- Mineral oils, glycols and polyglycols, transmission fluids (ATF), mineral based greases and lubrication oils.

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

100 °C, 212 °F

TUBE

Synthetic rubber

REINFORCEMENT

One high tensile steel braid

COVER

Weather resistant synthetic rubber

APPLICABLE SPECS

Manuli® Design

TYPE APPROVALS

CU-TR

manuli HYDRAULICS

JACKMASTER/70

EXTREME STATIC PRESSURE



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H01168006*	6	-4	1/4"	12.7	0.50	14.7	0.58	700	10,510	1,750	25,380	100	3.94	370	0.25	MF+M03400-04	OPF-04
H01168010*	10	-6	3/8"	16.4	0.64	18.2	0.71	700	10,510	1,750	25,380	127	5.00	517	0.35	MF+M03400-06	OPF-06

KEY FEATURES

- Robust structure
- ISO 16301 Class 70, Grade 1
- Extreme static pressures in remote locations
- Test certificate available upon request
- Skive and no-skive fittings available

APPLICATIONS & FLUIDS

- Manually operated hydraulic jacking systems
- Mineral oils, vegetable oils, glycol and polyglycol based oils, synthetic ester based oils (up to 100°C/212°F)

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

100 °C, 212 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Two high tensile steel braids

COVER

Weather resistant synthetic rubber

APPLICABLE SPECS

ISO 16301 Class 70, Grade 1

TYPE APPROVALS

CU-TR

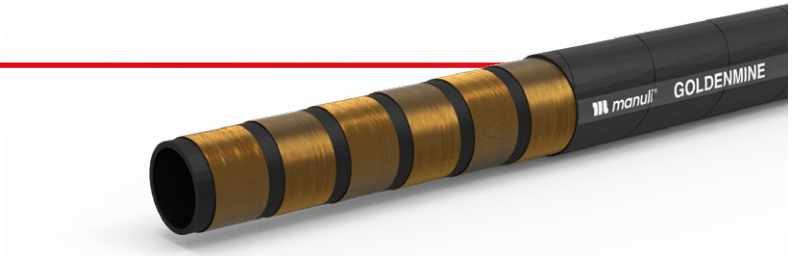
REMARKS

- *Product designed for jacking applications.*
- *Any different use may reduce service life. Please contact Manuli Hydraulics for more information.*

manuli® HYDRAULICS

GOLDENMINE

CHINA COAL MINE HYDRAULICS



TECHNICAL DATA

PART REF.	HOSE SIZE			R.O.D		O.D		MAX. W.P		BURST		MIN. BEND		WEIGHT		FITTINGS	
	DN	dash	inch	mm	inch	mm	inch	bar	psi	bar	psi	mm	inch	g/m	lb/ft	Std 1	Std 2
H10116063*	63	-40	2.1/2"	80.6	3.17	84.8	3.34	350	5,070	1,400	20,300	800	31.50	8,105	5.45	IP+M01810-40	

KEY FEATURES

- Very high flow rates in high pressure
- Extreme robustness of the hose structures
- Hose compact dimensions
- Approved with severe fatigue tests
- Superior abrasion resistance
- High ozone and weather resistance
- Flame retardant (MSHA) and antistatic properties
- Biological and mineral oils compatibility
- Crimped InterLock Plus fitting structure

APPLICATIONS & FLUIDS

- Hydraulics: heavy duty power lines in China coal mines, hydrostatic transmissions in severe environmental conditions, specific installations with tough abrasion conditions, underground and open pit mining.
- Mineral oils, vegetable oils and synthetic ester based oils (up to 100°C/212°F), glycols and polyglycols, mineral oils in aqueous emulsion, water

CONTINUOUS SERVICE TEMPERATURE RANGE

-46 °C, -50 °F

121 °C, 250 °F

TUBE

Oil resistant synthetic rubber

REINFORCEMENT

Six high tensile steel spirals

COVER

STRONG - TYPE “SC”
Synthetic rubber with high abrasion, ozone, weather and heat resistance and an extended operational temperature range

APPLICABLE SPECS

MT/T 98

TYPE APPROVALS

MA; MSHA; CU-TR

REMARKS

- *The brand of the hose reports Allowable Working Pressure (AWP) 50.0 MPa (500 bar) , Safety Factor 2.8:1 according to the China Norm MT/T 98*

manuli®
HYDRAULICS



HYDRAULIC FITTINGS

INTRODUCTION

Manuli Hydraulics is globally respected for the breadth and versatility of our hydraulic fittings range. Comprising over 6,000 references, we have fittings to suit most of the common international standards as well as the specific requirements of several of our important OEM customers.

The Manuli Hydraulics fittings range is made up of 3 families: MF2000, MF3000 and Smart Connectors.

The **MF2000** range comprises our core range of two-piece fitting solutions and has over 4,000 references:

Multifit (MF) - Simple and cost effective universal solution for wire spiral and wire braid hoses

Minifit (MN) - Extremely compact fittings for braided hose (DN6 to DN10)

Interlock Plus (IP) - Maximum reliability for very high pressure wire spiral hoses in heavy-duty applications

Interlock Super (IS) - High-tech swaged fittings for very large bore wire spiral hose

Spiralfit (SP) - No-skive insert for wire spiral hoses and large bore hose

Spiralfit GX (SPGX) - No-skive insert for wire spiral hoses and large bore hoses

Pushlock (PL) - Insert solution for low pressure applications without the need for a swaged ferrule

The **MF3000** range is made up of one-piece fittings for hoses at medium/high pressures:

One-Piece Flat (OPF) - No-skive, compact and flat-crimp fittings for wire braid hoses up to 1íí

One-Piece Kompact (OPK) - No-skive, compact and flat-crimp fittings for wire spiral and wire braid high pressure hoses up to 2íí

There are also several types of **Smart Connectors** available:

RotoFit - A well-known and patented Manuli Hydraulics solution designed to eliminate hose twist under external torques, which can be a major contributor to premature hose failure. The additional advantage of RotoFit is that it is a “Direct-to-Hose” and “Direct-to-Port” solution. By eliminating the need for adaptors, the number of possible leak points is reduced.

EasyFit - The Manuli “threadless” fittings solution for quick and easy installation of assemblies.

This innovative termination end is fitted with a simple axial push, allowing the hose to self-align and thus improve service life. Maintenance and repair time is also drastically reduced and installation / disconnection in restricted spaces is far easier. Moreover the “Direct-to-Port” concept eliminates the need for adaptors and the possibility of related leakages. All EasyFit fittings have an eco-friendly coating treatment for superior corrosion performance.

FastFit / FastFit Disconnectable - A “one plug” connection consisting of a male half integrated onto the hose and then inserted into the female cartridge. This easy and safe operation does not require any tools for assembly and allows easy installation in restricted areas or in complex configurations. FastFit comes in a wide range of cartridges with direct connection on most standard ports, including BSP, SAE METRIC and NPTF. In addition, the new FastFit Disconnectable range offers all the benefits of standard FastFit technology, but with the ability to disconnect the plug from the cartridge if required.

Adjustable Flange - A new and innovative product which allows the body of the flange fitting to rotate even after being installed and tightened, making installation simpler and also ensuring that the hose is oriented in its most natural way, reducing the likelihood of premature fatigue failures due to poor hose orientation.

E-Coat 1000 - Over 1,000 hours of corrosion protection

Corrosion of fittings can have severely damaging effects on the life and reliability of hose assemblies. In cases where fittings are becoming corroded at an unacceptable rate, ISO/TS 17165-2:2018 recommends upgrading the fittings to ones with an alternative plating material suitable for the environment in which they will be used.

Manuli's standard **E-Coat 500** plating is a first-class, long lasting solution which offers up to 500 hours to red rust in standard salt-spray tests, versus the required minimum of 144 hours as per SAE J516 (ISO 9227 method).

But Manuli have upped their game even further and can now offer the new **E-Coat 1000** plating, which offers double the corrosion resistance of standard E-Coat 500 plating with minimal cost increase.

E-Coat 1000 offers:

- High resistance in crimped conditions eg: ferrules and crimped back nuts
- Enhanced performance of corrosion resistance compared to the standard E-Coat 500 plating (over 1,000 hours before red corrosion in standard salt spray test conditions ASTM B117 and ISO 9227*)
- Higher resistance to abrasion and handling than standard plating
- Full compliance with the European Directives REACh 1907/2006/EC, RoHS 2011/65/EC, ELV 2000/53/EC
- E-Coat 1000 is available as an option on all Manuli hydraulic fittings and flat-face quick couplings

E-Coat 1000 plating is the optimum solution for applications in severe environments and for demanding OEM specifications. It also offers even longer durability in standard hydraulic applications.

Best-In-Class Corrosion Resistance - Putting it to the test

Many other fitting manufacturers declare the superb corrosion resistance of their fittings, so we tested E-Coat 1000 against the best of the competition. The results speak for themselves. The best comparable competitor coatings both declare 1,000 hours to red rust, however, they both began to show red corrosion after less than 500 hours, and were seriously corroded by 750 hours. In contrast, the Manuli sample with E-Coat 1000 was barely showing signs of white corrosion after more than 1,000 hours in salt spray conditions. Even crimped fittings with E-Coat 1000 lasted over 750 hours before showing significant signs of corrosion, despite the damage to the plating integrity which occurs during the mechanical deformation process of crimping.



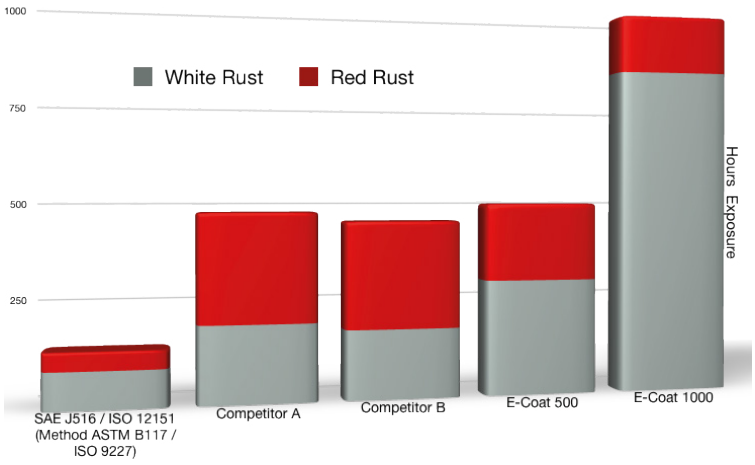
E-Coat 1000 after 1,000 hours
ASTM B117 (ISO 9227) salt spray test



Competitor A after 1,000 hours
ASTM B117 (ISO 9227) salt spray test



Competitor B after 1,000 hours
ASTM B117 (ISO 9227) salt spray test



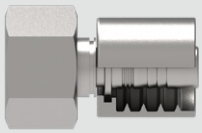
To order items with E-Coat 1000 plating, simply add the suffix "NK" to the part number when placing your orders.

Quantities and box sizes are as per standard fittings.

TWO PIECE TECHNOLOGY

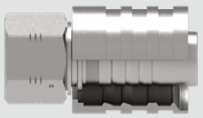
OVERVIEW

MINIFIT



p107 - p112

MULTIFIT



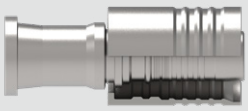
p113 - p175

INTERLOCK PLUS



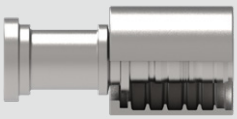
p176 - p221

INTERLOCK SUPER



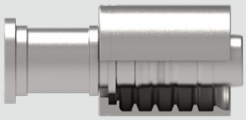
p222 - p225

SPIRALFIT



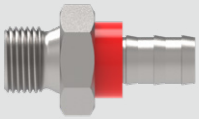
p226 - p247

SPIRALFIT GX



p248 - p249

PUSH-LOCK



p250 - p251

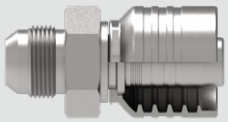
ACCESSORIES

p252 - p255

ONE PIECE TECHNOLOGY

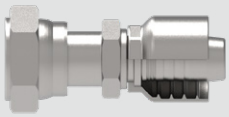
OVERVIEW

OPK



p256 - p280

OPF



p281 - p307

SMART FITTINGS

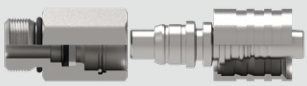
OVERVIEW

EASYFIT



p308 - p311

FASTFIT



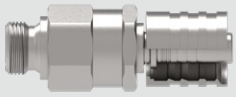
p312 - p318

FASTFIT DISCONNECTABLE



p319 - p321

ROTOFIT



p322 - p332

ADJUSTABLE FLANGE



p333 - p334

manuli® HYDRAULICS

Fitting	Maximum Working Pressure (bar)														
	Hose Size / Dash														
	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	3 1/2"	4"
	03	04	05	06	08	10	12	16	20	24	32	40	48	56	64
BSP 60° CONE BS5200 / ISO 8434-6	1/8"-28 350	1/4"-19 500		3/8"-19 460	1/2"-14 430	5/8"-14 350	3/4"-14 350	1"-11 350	1.1/4"-11 350	1.1/2"-11 300	2"-11 300	2.1/2"-11 140	3"-11 105		
BSP 60° CONE DOUBLE THRUST-WIRE NUT BS5200 / ISO 8434-6							3/4"-14 621	1"-11 621	1.1/4"-11 621	1.1/2"-11 560					
JIC 37° CONE ISO 8434-2 / SAE J514		7/16"-20 350	1/2"-20 350	9/16"-18 350	3/4"-16 350	7/8"-14 350	1.1/16"-12 350	1.5/16"-12 280	1.5/8"-12 210	1.7/8"-12 160	2.1/2"-12 125				
JIC 37° CONE DOUBLE THRUST-WIRE NUT ISO 8434-2 / SAE J514							1.1/16"-12 420	1.5/16"-12 420	1.5/8"-12 420	1.7/8"-12 420	2.1/2"-12 420				
ORFS ISO 8434-3 / SAE J1453		9/16"-18 460		11/16"-16 460	13/16"-16 420	1"-14 420	1.3/16"-12 420	1.7/16"-12 420	1.11/16"-12 420	2"-12 350					
NPTF MALE SAE J514 / ASME B1.20.3	1/8"-27 350	1/4"-18 350		3/8"-18 280	1/2"-14 245		3/4"-14 210	1"-11.5 175	1.1/4"-11.5 145	1.1/2"-11.5 145	2"-11.5 145				
NPSM FEMALE SAE J514	1/8"-27 350	1/4"-18 350		3/8"-18 280	1/2"-14 245		3/4"-14 210	1"-11.5 175	1.1/4"-11.5 145	1.1/2"-11.5 145	2"-11.5 145				
SAE 45° CONE SAE J512		7/16"-20 350	1/2"-20 350	5/8"-18 350	3/4"-16 310	7/8"-14 240	1.1/16"-14 240	1.3/8"-12 210							
ISO/SAE CODE 61 FLANGE ISO 6162-1 / SAE J518-1					1/2" 350		3/4" 350	1" 350	1-1/4" 280	1-1/2" 210	2" 210	2-1/2" 175	3" 160	3-1/2" 35	4" 35
ISO/SAE CODE 62 FLANGE ISO 6162-2 / SAE J518-2					1/2" 420		3/4" 420	1" 420	1-1/4" 420	1-1/2" 420	2" 420	2-1/2" 420	3" 420		
XTRAFLANGE/61 ISO 6162-1 / SAE J518-1 PORT COMPATIBLE								1" 420	1-1/4" 420	1-1/2" 420	2" 420	2.1/2" 420			
XTRAFLANGE/62 ISO 6162-2 / SAE J518-2 PORT COMPATIBLE							3/4" 560	1" 560	1-1/4" 560	1-1/2" 560	2" 450	2.1/2" 420	3" 420		
FLANGE/PLUS ISO 6162-2 / SAE J518-2 PORT COMPATIBLE							3/4" 420	1" 420	1-1/4" 420						
CAT FLANGE ISO 6162-2 / SAE J518-2 PORT COMPATIBLE							3/4" 420	1" 420	1-1/4" 420	1-1/2" 420	2" 420				
METRIC CONE 24° L SERIES ISO 8434-1 / DIN 3865	M12x1.5 415	M14x1.5 400	M16x1.5 350	M18x1.5 330	M22x1.5 275	M26x1.5 250	M30x2 245	M36x2 245	M45x2 220	M52x2 100					
METRIC CONE 24° S SERIES ISO 8434-1 / DIN 3865	M16x1.5 630	M18x1.5 630	M20x1.5 630	M20x1.5 630	M24x1.5 450	M30x2 420	M36x2 420	M42x2 420	M52x2 420						
METRIC CONE 60° LL SERIES DIN 20066							M30x2 63	M38x1.5 63	M45x1.5 63	M52x1.5 63	M65x2 40				
METRIC MULTISEAL DIN 20066	M12x1.5 250	M14x1.5 250	M16x1.5 250	M18x1.5 250	M22x1.5 250	M26x1.5 160									
FRENCH METRIC MILLIMETRIC NF E48-064						M27x1.5 420	M30x1.5 420	M33x1.5 420							
FRENCH GAZ MILLIMETRIC NF E48-064				M20x1.5 630	M24x1.5 630	M30x1.5 420	M36x1.5 420	M45x1.5 420							
JIS METRIC FEMALE 60° CONE (KOMATSU) JIS B8363		M14x1.5 350	M16x1.5 350	M18x1.5 350	M22x1.5 350	M24x1.5 280	M30x1.5 280	M33x1.5 280	M36x1.5 175	M42x2 105					
JIS GAS FEMALE 60° CONE (TOYOTA) JIS B8363		1/4"-19 350		3/8"-19 350	1/2"-14 350		3/4"-14 280	1"-11 280	1.1/4"-11 175	1.1/2"-11 105	2"-11 105				
SALE MALE O-RING BOSS TYPE SAE J516 / ISO 11926		7/16"-20 420		9/16"-18 420	3/4"-16 350	7/8"-14 280	1.1/6"-12 280	1.5/16"-12 210	1.5/8"-12 210						
METRIC STANDPIPE LIGHT DUTY DIN 2353 / ISO 8434-1	6 mm 250	8 mm 250	10 mm 250	12 mm 250	15 mm 250	18 mm 160	22 mm 160	28 mm 100	35 mm 100	42 mm 100					
METRIC STANDPIPE HEAVY DUTY DIN 2353 / ISO 8434-1	8 mm 630	10 mm 630	12 mm 630	14 mm 400	16 mm 400	20 mm 400	25 mm 400	30 mm 250	38 mm 250						
BSP BANJO		1/4"-19 210	3/8"-19 210	3/8"-19 210	1/2"-14 210	5/8"-14 210	3/4"-14 210	1"-11 210							
METRIC BANJO DIN 7642		M12x1.5 210	M14x1.5 210	M16x1.5 210	M22x1.5 210	M22x1.5 210	M26x1.5 210								
WASHCLEANER				M22x1.5 420											

A523H95	318
A52013H	315
A52014H	321
A52032H	310
A52053H	315
A52192H	311
A52193H	318
A52194H	320
A52283H	316
A52302H	310
A52323H	316
A52324H	320
A54363H	317
A57363H	317
AR520504	331
AR580504	332
IM01500	210
IM01600	210
IM01800/IM01810	210
IM01900	211
IM30510	211
IM31210	218
IM32510	212
IM32810	215
IM40812	211
IM40842	212
IM40892	212
IM41612/IM41613	218
IM41642/IM41643	219
IM41692/IM41693	219
IM42412	214
IM42442	214
IM42492	215
IM42512	213
IM42542	213
IM42592	214
IM43310	216
IM43310	219
IM43340	216
IM43390	216
IM43610	217
IM43640	217
IM43690	218
IM43910	220
IM43940	220
IM43990	220
INFINITY	59
IO821GA	255
IO84210	255
JO29	209
JO29	225
L10510	250
L20513	250
L20543	251
L20593	251
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M12H40	308
M12H90	309
M13H10	313
M13H40	313
M13H90	313
M14H10	320
M22H10	309
M33H10	314
M33H40	314
M33H90	314
M73H10	315
M00110/M00120/M00130	112
M00310/M00321	113
M00820/M00830	113
M00910/M00920/M00930	112
M01500	175
M01600	175
M01800/M01810/M01850	175
M01900	176
M02400	106
M02610	221
M02700	221
M02800	221
M02900	222
M03300	114
M03400/M03450	114
M03500	115
M4364A	333
M4369A	333
M05400	226
M05500	226
M05500-GX	248
M10050	172
M10510	116
M10610	124
M10710	115
M11010	153
M11110	156
M11190	157
M11210	160
M11290	160
M11710	163
M11810	164
M12410	132
M12510	125
M12810	140
M13010	137
M14110R	140
M14310	137
M14390	138
M20511KR	117
M20512/M20513	117
M20514	118
M20541KR	119
M20542/M20543	118
M20591KR	120
M20592/M20593	119
M20594	120
M20612/M20613	125
M20711/M20712	167
M20811HKR	121
M20812/M20813	121
M20841KR	122
M20842/M20843	122
M20882F	124
M20891KR	123
M20892/M20893	123
M21012/M21013	153
M21043	154
M21093	154
M21312/M21313	155
M21342/M21343	155
M21392/M21393	156
M21512/M21513	157
M21542/M21543	158
M21592/M21593	159
M21612/M21613	161
M21642/M21643	162
M21692/M21693	163
M21713	164
M21813	165
M21893	165
M22010	150
M22040	151
M22090	152
M22110	150
M22140	151
M22190	152
M22411	133
M22441KR	135
M22441/M22443	134
M22491KR	136
M22491/M22493	135
M22512/M22513	126
M22541KR	129
M22542/M22543	129
M22582F	132
M22591KR	130
M22592/M22593	130
M22612	138
M22642	139
M22692	139
M22711/M22711KR	128
M22712	127
M22812	141
M23301P	146
M23301S	147
M23301T	147
M23311	141
M23321	142
M23331	142
M23341	143
M23361	144
M23371	144
M23391	145
M23391 LONG DROP	146
M23611	148
M23641	148
M23691	149
M23811	167
M23911	169
M23911CT	169
M23941	170
M23941CT	170
M23991	171
M23991CT	171
M24011/M24012	166
M24091	166
M24111	168
M24141	168
M24191	168
M24491 LONG DROP	136
M24791KR	131
M24792/M24793	131
M27411	133
M27411KR	134
M30050	208
M30510	176
M30710	176
M31110	196
M31210	197
M31240	197
M31290	197
M32410	182
M32510	180
M32810	187
M33010	187
M40512	177
M40514	177
M40542	177
M40592	178
M40812	178
M40842	179
M40892	179
M41243 LONG DROP	200
M41293 LONG DROP	200
M41612/M41613	198
M41642/M41643	198
M41663	199
M41692/M41693	199
M42411	183
M42412	183
M42431	184
M42441	184
M42442	184
M42443	185
M42461	185
M42491	185
M42492	186
M42493	186
M42512	180
M42542	181
M42592	182
M42714	181
M43310	188
M43320	188
M43330	189
M43340	189
M43360	190
M43370	190
M43390	191
M43610	191
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M43630	192
M43640	193
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M43670	194
M43690	194
M43710	200
M43740	201
M43790	201
M43910	202
M43910CT	202
M43920	203
M43930	203
M43930CT	204
M43940	204
M43940CT	205
M43960	205
M43960CT	206

M43970	206
M43970CT	206
M43990	207
M43990CT	208
M43990CT LONG DROP	208
M43990 LONG DROP	207
M44492 LONG DROP	186
M48410	195
M48490	195
M48510	195
M48540	196
M48590	196
M49510WL	209
M70050	247
M70510	227
M71210	240
M72410	231
M72510	229
M72810	233
M73010	233
M80812	227
M80842	228
M80892	228
M81612	240
M81642/M81643	241
M81692/M81693	241
M82412	231
M82442	232
M82492	232
M82542	230
M82592	230
M82712	229
M83301...P	235
M83311	234
M83341	234
M83391	235
M83611	236
M83611-GX	248
M83621	236
M83631	237
M83641	237
M83641-GX	248
M83661	238
M83691	238
M83691-GX	249
M83711	242
M83741	242
M83791	243
M83911	243
M83921	244
M83931	244
M83941	245
M83961	245
M83971	246
M83991	246
M83991 LONG DROP	247
M84492	232
M84792	231
M88511	239
M88541	239
M88591	239
M89510WL	247
MB0514	222
MB3610	222
MB3640	223
MB3690	223
MB3910	224
MB3940	224
MB3990	225
MB8510	223
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MR10510	323
MR11210	327
MR11910	327
MR12410	325
MR12810	325
MR20812	323
MR20892RT	324
MR21512	327
MR21612	328
MR22411	325
MR22510	324
MR22711	324
MR23311FK	326
MR23341FK	326
MR23361FK	326
MR30510	328
MR32810	329
MR40812	328
MR42410	329
MR42510	329
MR43310	330
MR43610	330
MR43690	330
MR83611	331
MR83691	331
MS0511KR	106
MS0513	106
MS0541KR	107
MS0543	107
MS0591KR	108
MS0593	107
MS0811HKR	108
MS0813	108
MS0841KR	109
MS0843	109
MS0882F	110
MS0891KR	110
MS0893	109
MS1513	111
MS1593	111
MT0710	110
O82H10	311
O820	252
O821 / IO821	252
O20310	173
O20910	173
O80210	174
O80810	174
O83308	253
O83607	254
O83609	253
O88407	254
O88507	254
OPF10510	281
OPF10710	281
OPF11110	301
OPF11210	303
OPF12410	292
OPF12510	286
OPF12810	296
OPF13010	294
OPF14110R	297
OPF14310	295
OPF14390	295
OPF20512/OPF20513	282
OPF20542/OPF20543	282
OPF20592/OPF20593	283
OPF20612/OPF20613	285
OPF20711	306
OPF20812/OPF20813	283
OPF20842/OPF20843	284
OPF20882F	285
OPF20892/OPF20893	284
OPF21312/OPF21313	300
OPF21392/OPF21393	301
OPF21512/OPF21513	302
OPF21542/OPF21543	302
OPF21592/OPF21593	303
OPF21612/OPF21613	304
OPF21642/OPF21643	304
OPF21692/OPF21693	305
OPF22010	300
OPF22411/ OPF22412	292
OPF22441/OPF22443	293
OPF22491/OPF22493	293
OPF22541KR	288
OPF22542/OPF22543	288
OPF22582F	291
OPF22591KR	290
OPF22592/OPF22593	289
OPF22612	296
OPF22711K	287
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OPF22812	297
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OPF23361	299
OPF23371	299
OPF23391	300
OPF23811	306
OPF24011	305
OPF24111	306
OPF24141	307
OPF24191	307
OPF24491	294
OPF24791KR	291
OPF24792/OPF24793	290
OPK10510	256
OPK11110	273
OPK11210	275
OPK11710	277
OPK11810	277
OPK12410	264
OPK12510	259
OPK12810	267
OPK13010	266
OPK14110R	267
OPK14310	266
OPK20512/OPK20513	256
OPK20542/OPK20543	257
OPK20592/OPK20593	257
OPK20812/OPK20813	258
OPK20842/OPK20843	258
OPK20892/OPK20893	259
OPK21512/OPK21513	274
OPK21542/OPK21543	274
OPK21592/OPK21593	275
OPK21612/OPK21613	276
OPK21642/OPK21643	276
OPK21692/OPK21693	277
OPK21813	278
OPK22411	264
OPK22441/OPK22443	265
OPK22491/OPK22493	265
OPK22541KR	261
OPK22542/OPK22543	261
OPK22591KR	262
OPK22592/OPK22593	262
OPK22711/OPK22711KR	260
OPK22712	260
OPK22812	268
OPK23311	268
OPK23321	269
OPK23331	269
OPK23341	270
OPK23361	270
OPK23371	271
OPK23391	271
OPK23611	272
OPK23641	272
OPK23691	273
OPK23911	279
OPK23941	280
OPK23991	280
OPK24011/OPK24012	278
OPK24111	278
OPK24141	279
OPK24191	279
OPK24491	266
OPK24791KR	263
OPK24792/OPK24793	263

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MINIFIT

DN	5	6	8	10	12	16	19	25	31	38	51	60	63	76
Inch	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"	1 1/4"	1 1/2"	2"	2 3/8"	2 1/2"	3"
Size	-03	-04	-05	-06	-08	-10	-12	-16	-20	-24	-32	-38	-40	-48
FERRULES														
M02400		■	■	■										
FITTINGS														
BSP		■	■	■										
DIN METRIC 24° CONE LIGHT TYPE		■	■	■										

MULTIFIT

DN	5	6	8	10	12	16	19	25	31	38	51	60	63	76	89	102
Inch	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"	1 1/4"	1 1/2"	2"	2 3/8"	2 1/2"	3"	3 1/2"	4"
Size	-03	-04	-05	-06	-08	-10	-12	-16	-20	-24	-32	-38	-40	-48	-56	-64
FERRULES																
M00110 / M00120 / M00130	■	■	■	■	■	■	■	■	■	■	■					
M00910 / M00920	■	■	■	■	■	■	■	■	■	■	■					
M03300	■	■	■	■												
M03400	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
M03500				■	■	■	■	■								
M00310 / M00320	■	■	■	■	■	■	■	■	■							
M00820 / M00830	■	■	■	■	■	■	■	■	■	■	■					
FITTINGS																
BSP	■	■	■	■	■	■	■	■	■	■	■		■	■		
SAE (JIC)	■	■	■	■	■	■	■	■	■	■	■					
SAE (ORFS)		■	■	■	■	■	■	■	■	■						
SAE (O-RING BOSS)		■	■	■	■	■	■	■	■							
SAE (NPTF-NPSM)	■	■	■	■	■	■	■	■	■	■	■		■	■		
SAE FLANGE CODE 61				■	■	■	■	■	■	■	■	■	■	■	■	■
SAE FLANGE CODE 62					■	■	■	■	■	■	■					
DIN STANDPIPE	■	■	■	■	■	■	■	■	■	■						
DIN METRIC 60° CONE	■	■		■		■	■	■	■	■	■					
DIN METRIC MULTISEAL	■	■	■	■	■	■	■									
DIN METRIC 24° CONE LIGHT TYPE	■	■	■	■	■	■	■	■	■	■	■					
DIN METRIC 24° CONE HEAVY TYPE	■	■	■	■	■	■	■	■	■	■						
NF (FRENCH MILLIMERIC TYPE)						■	■	■								
NF (FRENCH GAZ TYPE)		■	■	■	■	■	■	■								
JIS		■	■	■	■	■	■	■	■	■						
ORIGINAL EQUIPMENT CONNECTIONS					■	■	■	■	■	■						
BANJO CONNECTIONS		■	■	■	■	■	■	■								
SAE (45° CONE)		■		■			■									

INTERLOCK PLUS

DN	5	6	8	10	12	16	19	25	31	38	51	60	63	76	89	102
Inch	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"	1 1/4"	1 1/2"	2"	2 3/8"	2 1/2"	3"	3 1/2"	4"
Size	-03	-04	-05	-06	-08	-10	-12	-16	-20	-24	-32	-38	-40	-48	-56	-64
FERRULES																
M01500						■	■	■	■	■	■		■	■		
M01600									■	■						
M01800 / M01810 / M01850							■	■	■		■		■	■		
M01900									■							
FITTINGS																
BSP							■	■	■	■	■					
SAE (JIC)						■	■	■	■	■	■					
SAE (ORFS)						■	■	■	■	■						
SAE (O-RING COSS)							■	■	■							
SAE (NPTF-NPSM)						■	■	■	■	■	■		■	■		
SAE FLANGE CODE 61						■	■	■	■	■	■		■	■		
SAE FLANGE CODE 62						■	■	■	■	■	■		■	■		
DIN METRIC 24° CONE HEAVY TYPE						■	■	■	■	■						
ORIGINAL EQUIPMENT CONNECTIONS						■	■	■	■	■	■					
XTRAFLANGE/61								■	■	■	■		■			
XTRAFLANGE/62							■	■	■	■	■		■			

INTERLOCK PLUS STAINLESS STEEL

DN	5	6	8	10	12	16	19	25	31	38	51	60	63	76	89	102
Inch	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"	1 1/4"	1 1/2"	2"	2 3/8"	2 1/2"	3"	3 1/2"	4"
Size	-03	-04	-05	-06	-08	-10	-12	-16	-20	-24	-32	-38	-40	-48	-56	-64
FERRULES																
IM01500						■	■	■	■	■	■		■	■		
IM01600									■	■						
IM01800 / IM01810											■		■	■		
IM01900									■							
FITTINGS																
BSP							■	■	■	■	■					
SAE (JIC)						■	■	■	■	■	■					
SAE (ORFS)							■	■	■	■						
SAE (NPTF)						■	■	■	■	■	■		■	■		
SAE FLANGE CODE 61							■	■	■	■	■					
SAE FLANGE CODE 62						■	■	■	■	■	■		■	■		
DIN METRIC 24° CONE HEAVY TYPE						■	■	■	■							
ORIGINAL EQUIPMENT CONNECTIONS							■	■	■	■	■					

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INTERLOCK SUPER

DN	5	6	8	10	12	16	19	25	31	38	51	60	63	76	89	102
Inch	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"	1 1/4"	1 1/2"	2"	2 3/8"	2 1/2"	3"	3 1/2"	4"
Size	-03	-04	-05	-06	-08	-10	-12	-16	-20	-24	-32	-38	-40	-48	-56	-64
FERRULES																
M02700										■	■			■		
M02800														■		
FITTINGS																
SAE FLANGE CODE 62										■	■			■		
XTRAFLANGE/62										■	■			■		
BSP										■	■					
ORIGINAL EQUIPMENT CONNECTIONS										■						

SPIRALFIT

DN	5	6	8	10	12	16	19	25	31	38	51	60	63	76	89	102
Inch	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"	1 1/4"	1 1/2"	2"	2 3/8"	2 1/2"	3"	3 1/2"	4"
Size	-03	-04	-05	-06	-08	-10	-12	-16	-20	-24	-32	-38	-40	-48	-56	-64
FERRULES																
M05400						■	■	■	■	■	■		■	■	■	■
M05500									■	■	■					
FITTINGS																
BSP							■	■	■	■	■					
SAE (JIC)							■	■	■	■	■					
SAE (ORFS)							■	■	■	■						
SAE (O-RING BOSS)							■	■	■							
SAE (NPTF-NPSM)							■	■	■	■	■			■		
SAE FLANGE CODE 61							■	■	■	■	■		■	■	■	■
SAE FLANGE CODE 62							■	■	■	■	■					
DIN METRIC 24° CONE HEAVY TYPE							■	■	■	■						
ORIGINAL EQUIPMENT CONNECTIONS							■	■	■	■	■					
XTRAFLANGE/62							■	■	■	■	■					

SPIRALFIT GX

DN	5	6	8	10	12	16	19	25	31	38	51	60	63	76	89	102
Inch	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"	1 1/4"	1 1/2"	2"	2 3/8"	2 1/2"	3"	3 1/2"	4"
Size	-03	-04	-05	-06	-08	-10	-12	-16	-20	-24	-32	-38	-40	-48	-56	-64
FERRULES																
M05500-GX										■	■					
FITTINGS																
SAE FLANGE CODE 62										■	■					

PUSHLOCK

DN	5	6	8	10	12	16	19	25	31	38	51	60	63	76	89	102
Inch	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"	1 1/4"	1 1/2"	2"	2 3/8"	2 1/2"	3"	3 1/2"	4"
Size	-03	-04	-05	-06	-08	-10	-12	-16	-20	-24	-32	-38	-40	-48	-56	-64

FITTINGS																
BSP		■		■	■	■	■	■								

OPF

DN	5	6	8	10	12	16	19	25	31	38	51
Inch	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"	1 1/4"	1 1/2"	2"
Size	-03	-04	-05	-06	-08	-10	-12	-16	-20	-24	-32

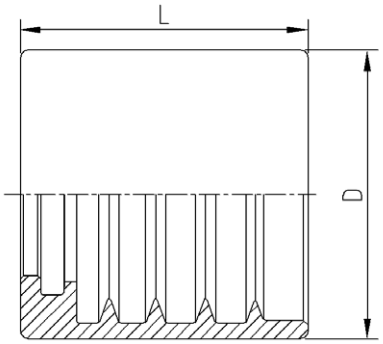
FITTINGS											
BSP	■	■	■	■	■	■	■	■			
SAE (JIC)	■	■	■	■	■	■	■	■			
SAE (ORFS)		■	■	■	■	■	■	■			
SAE (O-RING BOSS)		■		■	■	■	■	■			
SAE (NPTF-NPSM)	■	■	■	■	■	■	■	■			
SAE FLANGE CODE 61					■	■	■	■			
DIN STANDPIPE		■		■							
DIN METRIC MULTISEAL				■	■						
DIN METRIC 24° CONE LIGHT TYPE	■	■	■	■	■	■	■	■			
DIN METRIC 24° CONE HEAVY TYPE	■	■	■	■	■	■	■	■			
JIS		■		■	■	■	■	■			
ORIGINAL EQUIPMENT CONNECTIONS						■					

manuli® HYDRAULICS

OPK

DN	5	6	8	10	12	16	19	25	31	38	51
Inch	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"	1 1/4"	1 1/2"	2"
Size	-03	-04	-05	-06	-08	-10	-12	-16	-20	-24	-32

FITTINGS											
BSP				■	■	■	■	■	■	■	■
SAE (JIC)				■	■	■	■	■	■	■	■
SAE (ORFS)				■	■	■	■	■	■	■	
SAE (O-RING BOSS)					■		■	■			
SAE (NPTF-NPSM)				■	■	■	■	■	■	■	■
SAE FLANGE CODE 61					■	■	■	■	■	■	■
SAE FLANGE CODE 62					■	■	■	■	■	■	■
DIN METRIC 24° CONE LIGHT TYPE					■	■	■	■	■	■	
DIN METRIC 24° CONE HEAVY TYPE					■	■	■	■	■	■	
NF (FRENCH MILLIMETRIC TYPE)							■				
NF (FRENCH GAZ TYPE)							■	■			
JIS				■	■	■	■	■		■	
ORIGINAL EQUIPMENT CONNECTIONS						■	■	■	■	■	

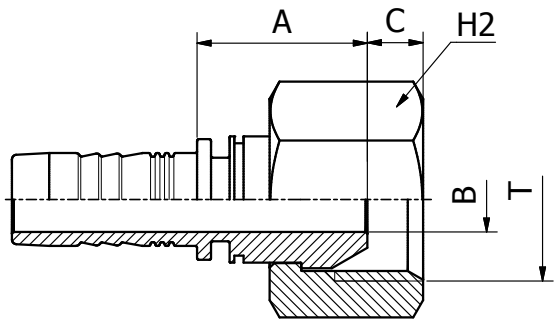


FERRULE

M02400

NO-SKIVE FERRULE FOR COMPACT HOSES

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch			D	L					
M02400-03	5	- 3	3/16"			19.2	17.4					
M02400-04	6	- 4	1/4"			18.5	18.5					
M02400-05	8	- 5	5/16"			21.3	19.6					
M02400-06	10	- 6	3/8"			23.8	21.2					
M02400-08	12	- 8	1/2"			24.7	22.0					

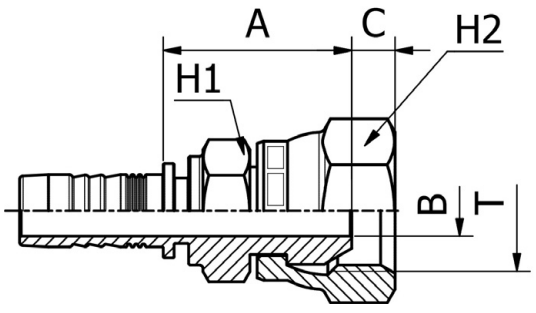


BS STANDARD CONNECTIONS

MS0513

BSP FEMALE 60° CONE BS5200 / ISO 8434-6

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H2			
MS0513-04-04	6	- 4	1/4"	1/4" - 19		4.0	15.7	5.4	19.0			
MS0513-06-06	10	- 6	3/8"	3/8" - 19		7.0	18.3	6.0	22.0			

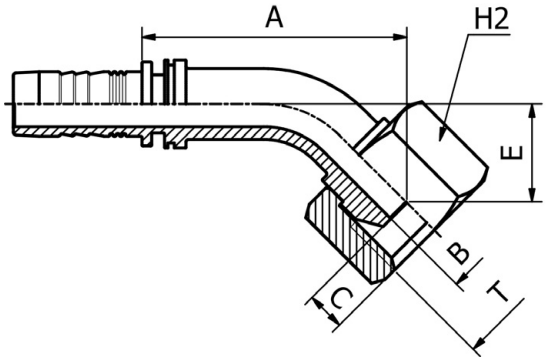


BS STANDARD CONNECTIONS

MS0511KR

BSP FEMALE 60° CONE BS5200 / ISO 8434-6

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1	H2		
MS0511-03-04H12KR	5	-3	3/16"	1/4" - 19		4.0	23.5	5.2	12.0	19.0		
MS0511-04-04H12KR	6	- 4	1/4"	1/4" - 19		4.0	23.5	5.2	12.0	19.0		
MS0511-06-06H17KR	10	- 6	3/8"	3/8" - 19		7.0	26.0	6.0	17.0	22.0		
MS0511-08-08H19KR	12	-8	1/2"	1/2" - 14		9.3	32.5	6.5	19.0	27.0		

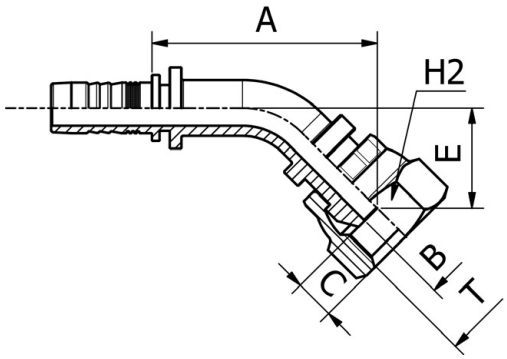


BS STANDARD CONNECTIONS

MS0543

45° BSP
FEMALE 60° CONE
BS5200 / ISO 8434-6

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
MS0543-04-04	6	- 4	1/4"	1/4" - 19		4.0	34.7	5.4	14.7	19.0		
MS0543-06-06	10	- 6	3/8"	3/8" - 19		7.0	41.0	6.0	15.3	22.0		

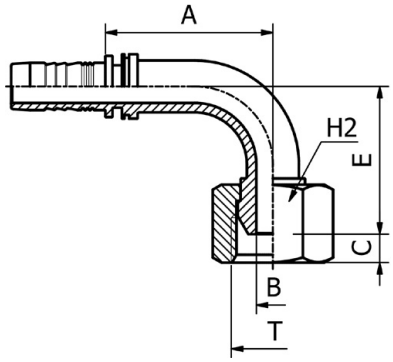


BS STANDARD CONNECTIONS

MS0541KR

BSP
FEMALE 60° CONE
BS5200 / ISO 8434-6

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
MS0541-04-04KR	6	- 4	1/4"	1/4" - 19		4.2	36.5	5.2	16.6	19.0		
MS0541-06-06KR	10	- 6	3/8"	3/8" - 19		7.0	44.5	6.0	20.0	22.0		

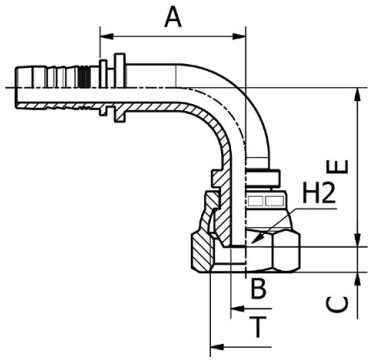


BS STANDARD CONNECTIONS

MS0593

90° BSP
FEMALE 60° CONE
BS5200 / ISO 8434-6

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
MS0593-04-04	6	- 4	1/4"	1/4" - 19		4.0	28.2	5.4	29.0	19.0		
MS0593-06-06	10	- 6	3/8"	3/8" - 19		7.0	35.3	6.0	31.5	22.0		

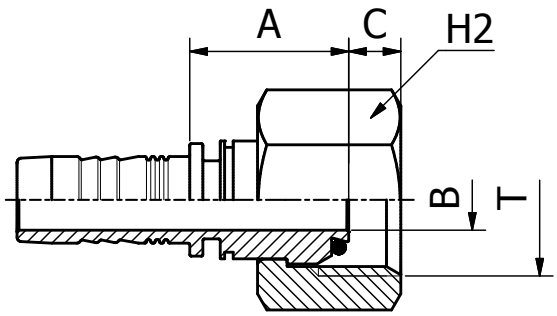


BS STANDARD CONNECTIONS

MS0591KR

90° BSP
FEMALE SWEPT ELBOW 60° CONE
BS5200 / ISO 8434-6

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
MS0591-04-04KR	6	- 4	1/4"	1/4" - 19		4.2	27.0	5.2	30.5	19.0		
MS0591-06-06KR	10	- 6	3/8"	3/8" - 19		7.0	34.5	6.0	37.5	22.0		

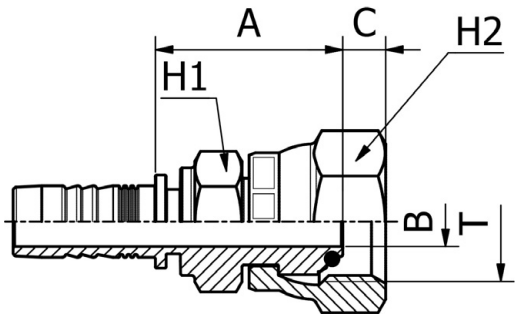


BS STANDARD CONNECTIONS

MS0813

BSP
O-RING FEMALE 60° CONE
BS5200 / ISO 8434-6

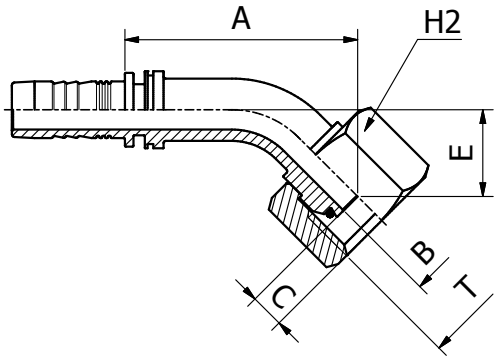
PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H2			
MS0813-03-04	5	- 3	3/16"	1/4" - 19		4.0	15.5	5.4	19.0			
MS0813-04-04	6	- 4	1/4"	1/4" - 19		4.0	15.5	5.4	19.0			
MS0813-05-06	8	- 5	5/16"	3/8" - 19		7.0	18.0	6.0	22.0			
MS0813-06-06	10	- 6	3/8"	3/8" - 19		7.0	18.5	6.0	22.0			
MS0813-08-08	12	- 8	1/2"	1/2" - 14		9.3	20.5	6.3	27.0			



BS STANDARD CONNECTIONS

MS0811HKR

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1	H2		
MS0811-04-04H12KR	6	- 4	1/4"	1/4" - 19		4.0	23.5	5.2	12.0	19.0		
MS0811-06-06H17KR	10	- 6	3/8"	3/8" - 19		7.0	26.0	6.0	17.0	22.0		

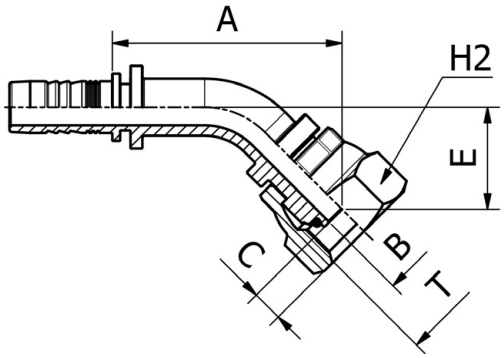


BS STANDARD CONNECTIONS

MS0843

45° BSP
O-RING FEMALE 60° CONE
BS5200 / ISO 8434-6

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
MS0843-04-04	6	- 4	1/4"	1/4" - 19		4.0	34.7	5.4	14.7	19.0		
MS0843-05-06	8	- 5	5/16"	3/8" - 19		7.0	40.5	6.0	17.0	22.0		
MS0843-06-06	10	- 6	3/8"	3/8" - 19		7.0	41.0	6.0	15.3	22.0		

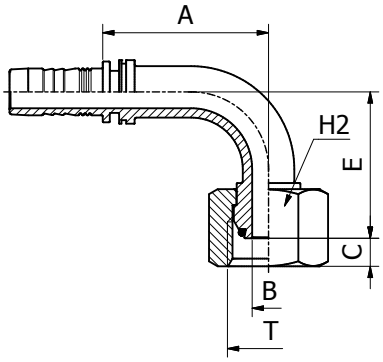


BS STANDARD CONNECTIONS

MS0841KR

45° BSP
O-RING FEMALE 60° CONE
BS5200 / ISO 8434-6

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
MS0841-04-04KR	6	- 4	1/4"	1/4" - 19		4.2	36.5	5.2	16.5	19.0		
MS0841-06-06KR	10	- 6	3/8"	3/8" - 19		7.0	44.5	6.0	20.0	22.0		

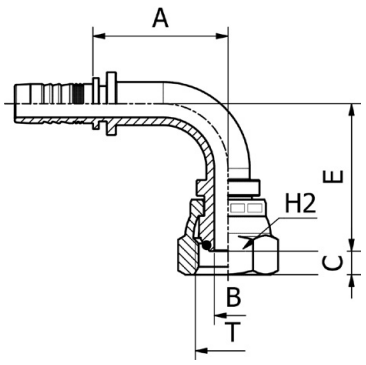


BS STANDARD CONNECTIONS

MS0893

90° BSP
O-RING FEMALE 60° CONE
BS5200 / ISO 8434-6

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
MS0893-03-04	5	- 3	3/16"	1/4" - 19		4.2	28.0	5.4	29.0	19.0		
MS0893-04-04	6	- 4	1/4"	1/4" - 19		4.0	28.0	5.4	29.0	19.0		
MS0893-05-06	8	- 5	5/16"	3/8" - 19		7.0	31.0	6.0	32.5	22.0		
MS0893-06-06	10	- 6	3/8"	3/8" - 19		7.0	35.5	6.0	31.5	22.0		
MS0893-08-08	12	- 8	1/2"	1/2" - 14		9.3	45.0	6.3	36.5	27.0		

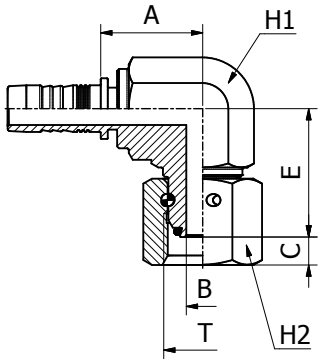


BS STANDARD CONNECTIONS

MS0891KR

90° BSP
O-RING FEMALE 60° CONE
BS5200 / ISO 8434-6

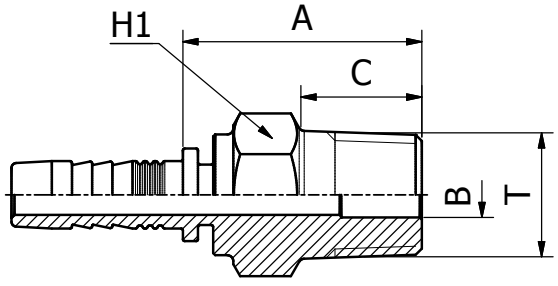
PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
MS0891-04-04KR	6	- 4	1/4"	1/4" - 19		4.2	27.0	5.2	30.5	19.0		
MS0891-06-06KR	10	- 6	3/8"	3/8" - 19		7.0	34.5	6.0	37.5	22.0		



BS STANDARD CONNECTIONS

MS0882F

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H1	H2	
MS0882-04-04F	6	-4	1/4"	1/4" - 19		4	18,7	4,1	22	14	19	
MS0882-06-06F	10	-6	3/8"	3/8" - 19		7	21,8	6	27,5	19	22	

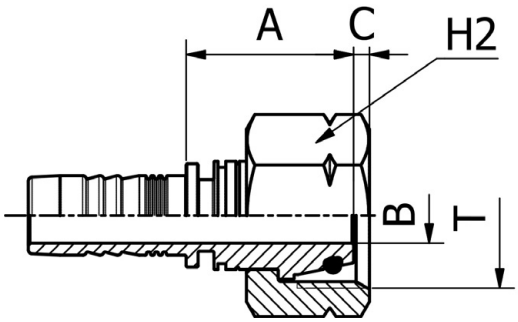


BS STANDARD CONNECTIONS

MT0710

BSP MALE TAPERED

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1			
MT0710-04-04	6	- 4	1/4"	1/4" - 19		4.5	23.5	12.0	14.0			

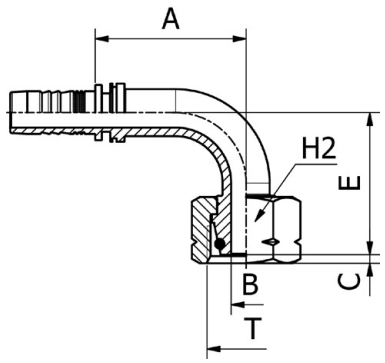


DIN STANDARD CONNECTIONS

MS1513

METRIC
O-RING FEMALE 24° CONE LIGHT DUTY
ISO 8434-1 / DIN 3865

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H2			
MS1513-04-14	6	- 4	1/4"	M14 X 1.5		4.0	21.0	1.3	17.0			
MS1513-05-16	8	- 5	5/16"	M16 X 1.5		6.0	21.5	1.8	19.0			
MS1513-05-18	8	- 5	5/16"	M18 X 1.5		7.0	20.9	2.0	22.0			
MS1513-06-18	10	- 6	3/8"	M18 X 1.5		7.0	21.1	2.0	22.0			

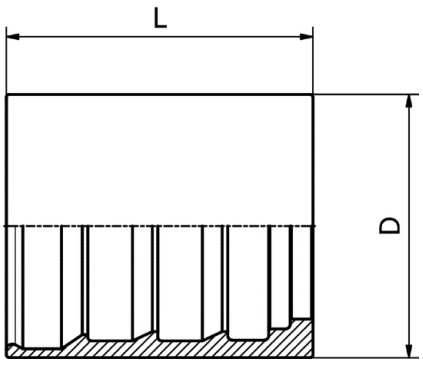


DIN STANDARD CONNECTIONS

MS1593

90° METRIC
O-RING FEMALE 24° CONE LIGHT DUTY
ISO 8434-1 / DIN 3865

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
MS1593-04-14	6	- 4	1/4"	M14 X 1.5		4.0	28.0	1.3	31.5	17.0		
MS1593-05-16	8	- 5	5/16"	M16 X 1.5		6.0	31.0	1.8	32.5	19.0		
MS1593-06-18	10	- 6	3/8"	M18 X 1.5		7.0	35.5	2.5	33.5	22.0		

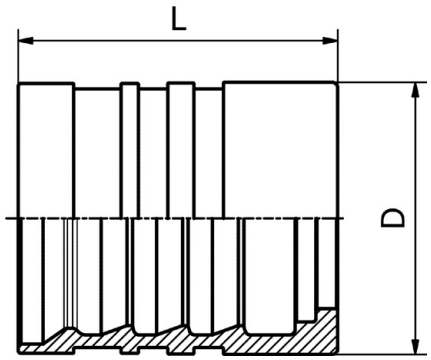


FERRULE

M00110/M00120/M00130

SKIVE FERRULE FOR WIRE BRAID HOSES

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch			D	L					
M00120-03	5	- 3	3/16"			17.0	23.9					
M00120-04	6	- 4	1/4"			19.5	28.0					
M00120-05	8	- 5	5/16"			20.0	28.6					
M00120-06	10	- 6	3/8"			23.0	30.0					
M00120-08	12	- 8	1/2"			26.7	32.0					
M00120-10	16	- 10	5/8"			32.0	38.0					
M00120-12	19	- 12	3/4"			35.8	41.7					
M00130-16	25	- 16	1"			43.0	47.0					
M00110-20	31	- 20	1.1/4"			50.5	59.0					
M00110-24	38	- 24	1.1/2"			57.0	70.0					
M00110-32	51	- 32	2"			70.0	72.0					

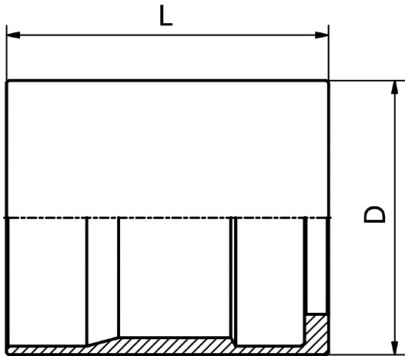


FERRULE

M00910/M00920/M00930

SKIVE FERRULE FOR WIRE BRAID AND SPIRAL HOSES

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch			D	L					
M00910-03	5	- 3	3/16"			20.6	26.0					
M00910-04	6	- 4	1/4"			22.0	30.0					
M00910-05	8	- 5	5/16"			24.0	31.0					
M00910-06	10	- 6	3/8"			26.0	33.0					
M00920-06	10	- 6	3/8"			26.7	33.0					
M00910-08	12	- 8	1/2"			30.0	34.0					
M00910-10	16	- 10	5/8"			33.0	39.0					
M00920-12	19	- 12	3/4"			38.0	40.0					
M00930-16	25	- 16	1"			46.0	54.0					
M00920-20	31	- 20	1.1/4"			57.0	60.0					
M00910-24	38	- 24	1.1/2"			65.0	70.0					
M00910-32	51	- 32	2"			79.0	72.0					

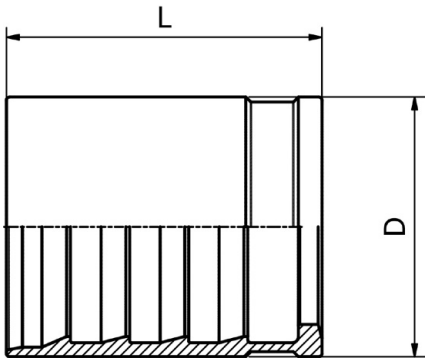


FERRULE

M00310/M00321

NO-SKIVE FERRULE FOR TEXTILE BRAID HOSES

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch			D	L					
M00310-03	5	- 3	3/16"			17.5	27.0					
M00310-04	6	- 4	1/4"			19.3	30.0					
M00310-05	8	- 5	5/16"			21.0	32.0					
M00310-06	10	- 6	3/8"			24.0	32.0					
M00310-08	12	- 8	1/2"			28.4	34.0					
M00310-10	16	- 10	5/8"			33.0	37.0					
M00321-12	19	- 12	3/4"			37.0	43.0					
M00310-16	25	- 16	1"			43.5	51.0					
M00310-20	31	- 20	1.1/4"			50.0	59.0					

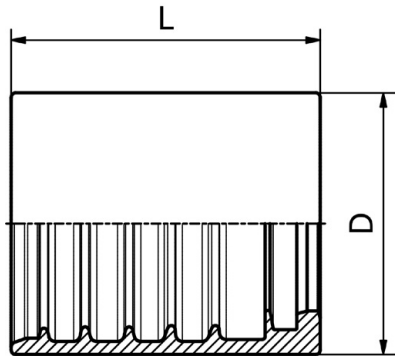


FERRULE

M00820/M00830

NO-SKIVE FERRULE FOR COMPACT HOSES

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch			D	L					
M00820-03	5	- 3	3/16"			14.0	26.4					
M00830-04	6	- 4	1/4"			18.0	29.6					
M00830-05	8	- 5	5/16"			19.0	31.9					
M00820-06	10	- 6	3/8"			22.0	32.9					
M00820-08	12	- 8	1/2"			26.0	33.9					
M00820-10	16	- 10	5/8"			29.0	35.9					
M00820-12	19	- 12	3/4"			33.0	41.7					
M00820-16	25	- 16	1"			41.0	49.7					
M00820-20	31	- 20	1.1/4"			48.0	57.0					
M00820-24	38	- 24	1.1/2"			55.5	66.0					
M00820-32	51	- 32	2"			68.6	70.0					

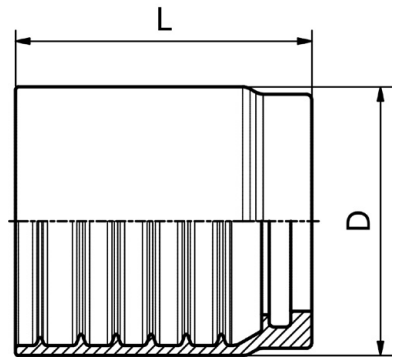


FERRULE

M03300

NO-SKIVE FERRULE FOR WIRE BRAID HOSES

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch			D	L					
M03300-03	5	- 3	3/16"			19.2	22.0					
M03300-04	6	- 4	1/4"			20.5	27.5					
M03300-05	8	- 5	5/16"			22.8	28.5					
M03300-06	10	- 6	3/8"			25.0	30.0					
M03300-08	12	- 8	1/2”			28.0	33.0					

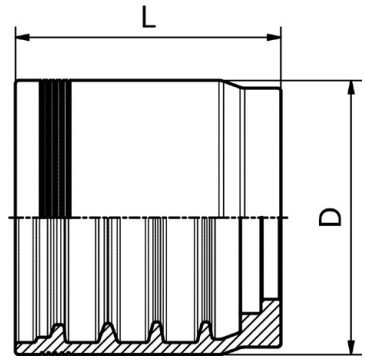


FERRULE

M03400/M03450

NO-SKIVE FERRULE FOR WIRE BRAID HOSES

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch			D	L					
M03400-03	5	- 3	3/16"			21.0	23.0					
M03400-04	6	- 4	1/4"			23.0	30.1					
M03400-05	8	- 5	5/16"			24.0	30.0					
M03400-06	10	- 6	3/8"			26.0	31.1					
M03400-08	12	- 8	1/2"			29.0	34.0					
M03450-08	12	- 8	1/2"			30.3	31.0					
M03400-10	16	- 10	5/8"			33.0	37.0					
M03400-12	19	- 12	3/4"			37.0	42.0					
M03400-16	25	- 16	1"			46.0	50.7					
M03400-20	31	- 20	1.1/4"			59.0	57.2					
M03400-24	38	- 24	1.1/2"			67.0	64.8					
M03400-32	51	- 32	2"			80.0	68.3					
M03400-38	60	- 38	2.3/8"			82.5	69.0					
M03400-40	63	- 40	2.1/2"			88.2	68.8					
M03400-48	76	- 48	3"			103.0	75.0					
M03400-56	89	- 56	3.1/2"			123.4	91.0					
M03400-64	102	-64	4”			131.0	93.0					

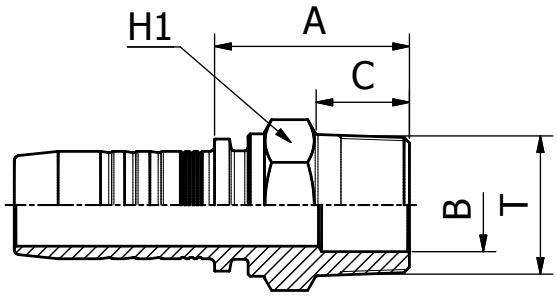


FERRULE

M03500

NO SKIVE FERRULE FOR WIRE SPIRAL HOSES

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch			D	L					
M03500-06	10	- 6	3/8"			29.5	30.7					
M03500-08	12	- 8	1/2"			33.4	32.0					
M03500-10	16	- 10	5/8"			37.2	34.8					
M03500-12	19	- 12	3/4"			41.3	40.0					
M03500-16	25	- 16	1"			49.1	51.0					
M03500-20	31	- 20	1.1/4"			59.3	54.5					

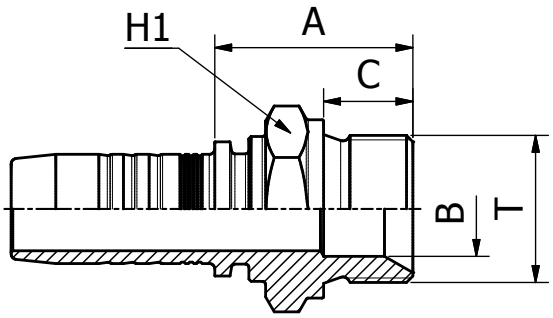


BS STANDARD CONNECTIONS

M10710

BSP MALE TAPERED - ISO 7

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1			
M10710-03-02	5	- 3	3/16"	1/8" - 28		4.5	20.5	8.0	12.0			
M10710-03-04	5	- 3	3/16"	1/4" - 19		4.5	24.5	12.0	14.0			
M10710-04-02	6	- 4	1/4"	1/8" - 28		4.5	21.0	8.0	12.0			
M10710-04-04	6	- 4	1/4"	1/4" - 19		4.5	25.0	12.0	14.0			
M10710-04-06	6	- 4	1/4"	3/8" - 19		7.0	26.0	12.0	19.0			
M10710-04-08	6	- 4	1/4"	1/2" - 14		10.0	29.5	15.0	22.0			
M10710-05-04	8	- 5	5/16"	1/4" - 19		5.5	25.0	12.0	14.0			
M10710-05-06	8	- 5	5/16"	3/8" - 19		7.0	26.5	12.0	19.0			
M10710-05-08	8	- 5	5/16"	1/2" - 14		10.0	30.0	15.0	22.0			
M10710-06-06	10	- 6	3/8"	3/8" - 19		7.0	27.0	12.0	19.0			
M10710-06-08	10	- 6	3/8"	1/2" - 14		10.0	30.5	15.0	22.0			
M10710-08-04	12	- 8	1/2"	1/4" - 19		4.5	26.0	12.0	19.0			
M10710-08-08	12	- 8	1/2"	1/2" - 14		10.0	31.0	15.0	22.0			
M10710-10-08	16	- 10	5/8"	1/2" - 14		10.0	31.0	15.0	22.0			
M10710-10-12	16	- 10	5/8"	3/4" - 14		17.0	34.0	17.0	27.0			
M10710-12-12	19	- 12	3/4"	3/4" - 14		17.0	35.5	17.0	27.0			
M10710-16-12	25	- 16	1"	3/4" - 14		17.0	38.0	17.0	32.0			
M10710-16-16	25	- 16	1"	1" - 11		22.5	42.0	21.0	36.0			
M10710-20-20	31	- 20	1.1/4"	1.1/4" - 11		28.5	47.5	23.0	46.0			
M10710-24-24	38	- 24	1.1/2"	1.1/2" - 11		32.0	50.0	23.0	50.0			
M10710-32-32	51	- 32	2"	2" - 11		44.0	55.5	27.0	65.0			

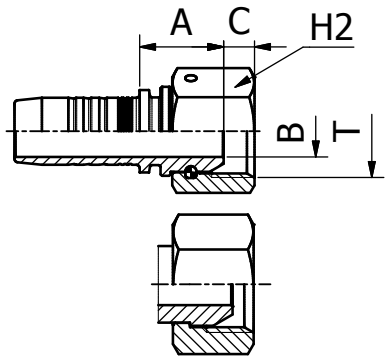


BS STANDARD CONNECTIONS

M10510

BSP MALE PARALLEL 60° CONE SEAT
BS5200 / ISO 8434-6

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1			
M10510-03-02	5	- 3	3/16”	1/8” - 28		3.5	22.5	10.0	14.0			
M10510-03-04	5	- 3	3/16”	1/4” - 19		5.0	25.0	11.0	19.0			
M10510-04-02	6	- 4	1/4”	1/8” - 28		3.5	22.5	10.0	14.0			
M10510-04-04	6	- 4	1/4”	1/4” - 19		5.0	25.5	11.0	19.0			
M10510-04-06	6	- 4	1/4”	3/8” - 19		8.0	27.0	12.0	22.0			
M10510-04-08	6	- 4	1/4”	1/2” - 14		11.0	30.0	14.0	27.0			
M10510-05-04	8	- 5	5/16”	1/4” - 19		5.0	26.0	11.0	19.0			
M10510-05-06	8	- 5	5/16”	3/8” - 19		8.0	27.5	12.0	22.0			
M10510-06-04	10	- 6	3/8”	1/4” - 19		5.0	26.0	11.0	19.0			
M10510-06-06	10	- 6	3/8”	3/8” - 19		8.0	28.0	12.0	22.0			
M10510-06-08	10	- 6	3/8”	1/2” - 14		11.0	30.5	14.0	27.0			
M10510-08-06	12	- 8	1/2”	3/8” - 19		8.0	28.0	12.0	22.0			
M10510-08-08	12	- 8	1/2”	1/2” - 14		11.0	31.0	14.0	27.0			
M10510-08-10	12	- 8	1/2”	5/8” - 14		14.5	33.0	16.0	30.0			
M10510-08-12	12	- 8	1/2”	3/4” - 14		17.0	34.0	16.0	32.0			
M10510-10-10	16	- 10	5/8”	5/8” - 14		14.5	33.0	16.0	30.0			
M10510-10-12	16	- 10	5/8”	3/4” - 14		17.0	35.5	16.0	32.0			
M10510-12-08	19	- 12	3/4”	1/2” - 14		11.0	32.0	14.0	27.0			
M10510-12-12	19	- 12	3/4”	3/4” - 14		17.0	35.5	16.0	32.0			
M10510-12-16	19	- 12	3/4”	1” - 11		22.5	39.5	19.0	41.0			
M10510-16-12	25	- 16	1”	3/4” - 14		17.0	36.5	16.0	32.0			
M10510-16-16	25	- 16	1”	1” - 11		22.5	41.0	19.0	41.0			
M10510-16-20	25	- 16	1”	1.1/4” - 11		28.5	45.0	20.0	50.0			
M10510-20-20	31	- 20	1.1/4”	1.1/4” - 11		28.5	46.5	20.0	50.0			
M10510-20-24	31	- 20	1.1/4”	1.1/2” - 11		33.5	48.5	22.0	55.0			
M10510-24-24	38	- 24	1.1/2”	1.1/2” - 11		33.5	49.5	22.0	55.0			
M10510-32-32	51	- 32	2”	2” - 11		46.0	54.0	25.0	70.0			

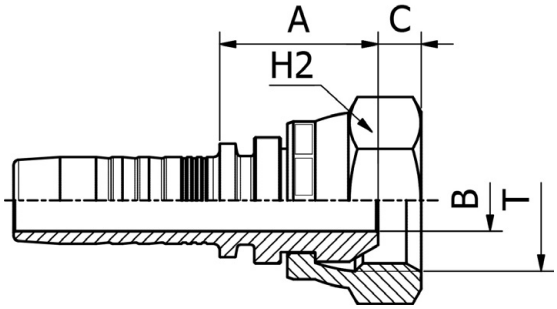


BS STANDARD CONNECTIONS

M20512/M20513

BSP FEMALE 60° CONE
BS5200 / ISO 12151-6

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H2			
M20512-03-02	5	- 3	3/16”	1/8” - 28		3.0	16.0	4.4	14.0			
M20512-04-02	6	- 4	1/4”	1/8” - 28		3.1	16.5	4.4	14.0			
M20512-05-04	8	- 5	5/16”	1/4” - 19		4.1	17.5	4.2	19.0			
M20512-06-04	10	- 6	3/8”	1/4” - 19		4.1	18.0	4.2	19.0			
M20512-08-06	12	- 8	1/2”	3/8” - 19		7.1	21.0	6.0	22.0			
M20512-08-10	12	- 8	1/2”	5/8” - 14		12.1	22.0	10.2	28.0			
M20512-08-12	12	- 8	1/2”	3/4” - 14		15.0	24.5	9.0	32.0			
M20512-10-08	16	- 10	5/8”	1/2” - 14		9.8	24.0	6.5	27.0			
M20512-10-10	16	- 10	5/8”	5/8” - 14		12.5	21.5	10.2	28.0			
M20512-10-12	16	- 10	5/8”	3/4” - 14		15.0	23.0	9.0	32.0			
M20512-12-08	19	- 12	3/4”	1/2” - 14		9.8	25.0	6.5	27.0			
M20512-12-12	19	- 12	3/4”	3/4” - 14		15.0	24.5	9.0	32.0			
M20512-12-16	19	- 12	3/4”	1” - 11		19.8	26.0	10.5	38.0			
M20512-16-12	25	- 16	1”	3/4” - 14		15.0	25.5	9.0	32.0			
M20512-16-16	25	- 16	1”	1” - 11		19.8	27.5	10.5	38.0			
M20513-03-04	5	- 3	3/16”	1/4” - 19		4.0	16.5	5.4	19.0			
M20513-04-04	6	- 4	1/4”	1/4” - 19		4.0	17.0	5.4	19.0			
M20513-04-06	6	- 4	1/4”	3/8” - 19		7.0	19.0	6.0	22.0			
M20513-04-08	6	- 4	1/4”	1/2” - 14		9.5	19.5	6.3	27.0			
M20513-05-06	8	- 5	5/16”	3/8” - 19		7.0	19.0	6.0	22.0			
M20513-05-08	8	- 5	5/16”	1/2” - 14		9.3	20.5	6.3	27.0			
M20513-06-06	10	- 6	3/8”	3/8” - 19		7.0	19.5	6.0	22.0			
M20513-06-08	10	- 6	3/8”	1/2” - 14		9.3	20.0	6.3	27.0			
M20513-08-08	12	- 8	1/2”	1/2” - 14		9.3	20.5	6.3	27.0			

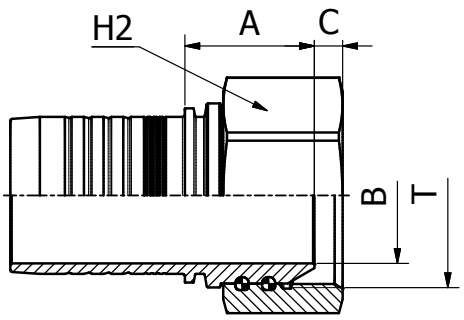


BS STANDARD CONNECTIONS

M20511KR

BSP FEMALE 60° CONE
BS5200 / ISO 12151-6

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H2			
M20511-04-04KR	6	- 4	1/4”	1/4” - 19		4.0	20.0	5.2	19.0			
M20511-06-06KR	10	- 6	3/8”	3/8” - 19		7.0	22.0	6.0	22.0			
M20511-08-08KR	12	- 8	1/2”	1/2” - 14		9.3	24.0	6.5	27.0			

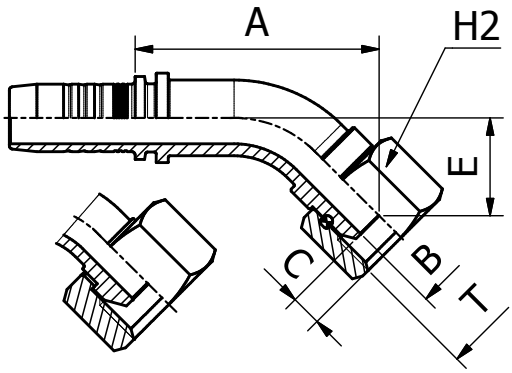


BS STANDARD CONNECTIONS

M20514

BSP FEMALE 60° CONE
BS5200 / ISO 12151-6

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H2			
M20514-40-40	63	- 40	2.1/2"	2.1/2"		55.4	52.5	11.5	85.0			
M20514-48-48	76	- 48	3"	3"		65.0	57.0	10.9	100.0			

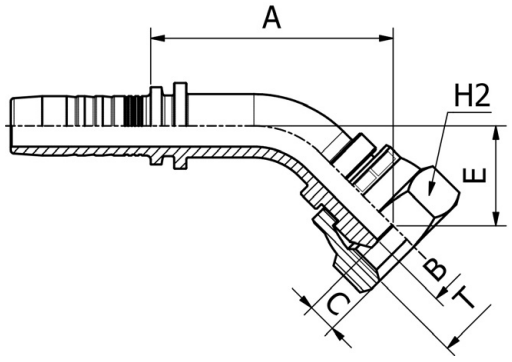


BS STANDARD CONNECTIONS

M20542/M20543

45° BSP FEMALE SWEPT ELBOW 60° CONE
BS5200 / ISO 12151-6

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M20542-03-02	5	- 3	3/16"	1/8" - 28		3.0	31.0	4.4	15.0	14.0		
M20542-04-02	6	- 4	1/4"	1/8" - 28		3.1	35.5	4.4	14.5	14.0		
M20542-05-04	8	- 5	5/16"	1/4" - 19		4.0	35.5	4.1	16.0	19.0		
M20542-08-06	12	- 8	1/2"	3/8" - 19		7.1	52.0	6.0	20.0	22.0		
M20542-08-10	12	- 8	1/2"	5/8" - 14		12.1	54.5	10.2	22.5	28.0		
M20542-08-12	12	- 8	1/2"	3/4" - 14		15.0	57.0	9.0	25.0	32.0		
M20542-10-08	16	- 10	5/8"	1/2" - 14		9.3	63.5	6.5	26.5	27.0		
M20542-10-10	16	- 10	5/8"	5/8" - 14		12.5	63.0	10.2	26.0	28.0		
M20542-10-12	16	- 10	5/8"	3/4" - 14		15.0	64.0	9.0	27.0	32.0		
M20542-12-08	19	- 12	3/4"	1/2" - 14		9.3	55.5	6.5	22.5	27.0		
M20542-12-12	19	- 12	3/4"	3/4" - 14		15.0	70.5	9.0	28.5	32.0		
M20542-12-16	19	- 12	3/4"	1" - 11		19.8	72.5	10.5	30.0	38.0		
M20542-16-16	25	- 16	1"	1" - 11		19.8	91.0	10.5	36.5	38.0		
M20543-03-04	5	- 3	3/16"	1/4" - 19		4.0	35.5	5.4	14.5	19.0		
M20543-04-04	6	- 4	1/4"	1/4" - 19		4.0	36.0	5.4	15.0	19.0		
M20543-04-06	6	- 4	1/4"	3/8" - 19		7.0	37.5	6.0	16.0	22.0		
M20543-05-06	8	- 5	5/16"	3/8" - 19		7.0	38.0	6.0	13.5	22.0		
M20543-06-06	10	- 6	3/8"	3/8" - 19		7.0	42.0	6.0	15.5	22.0		
M20543-06-08	10	- 6	3/8"	1/2" - 14		9.3	42.5	6.3	16.0	27.0		
M20543-08-08	12	- 8	1/2"	1/2" - 14		9.3	49.5	6.3	17.0	27.0		

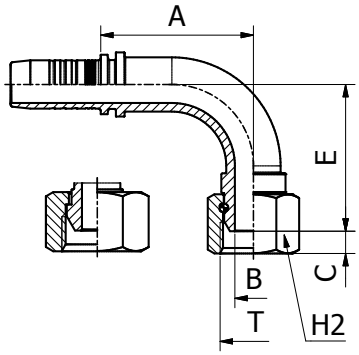


BS STANDARD CONNECTIONS

M20541KR

45° BSP FEMALE SWEPT ELBOW 60° CONE BS5200 / ISO 12151-6

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M20541-04-04KR	6	- 4	1/4"	1/4" - 19		4.2	38.0	5.2	16.6	19.0		
M20541-06-06KR	10	- 6	3/8"	3/8" - 19		7.0	45.5	6.0	20.0	22.0		
M20541-08-08KR	12	- 8	1/2"	1/2" - 14		9.3	54.0	6.5	22.0	27.0		

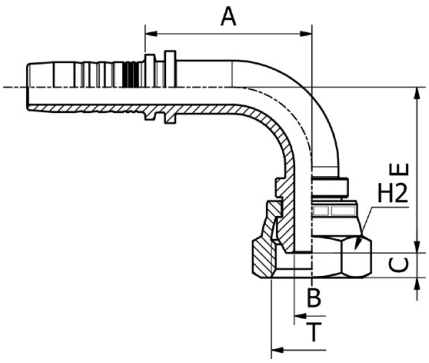


BS STANDARD CONNECTIONS

M20592/M20593

90° BSP FEMALE SWEPT ELBOW 60° CONE - BS5200 / ISO 12151-6

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M20592-03-02	5	- 3	3/16"	1/8" - 28		3.0	21.5	4.4	26.0	14.0		
M20592-04-02	6	- 4	1/4"	1/8" - 28		3.1	28.5	4.4	27.0	14.0		
M20592-05-04	8	- 5	5/16"	1/4" - 19		4.0	26.5	4.1	29.5	19.0		
M20592-06-04	10	- 6	3/8"	1/4" - 19		4.0	27.0	4.1	29.5	19.0		
M20592-08-06	12	- 8	1/2"	3/8" - 19		7.1	45.0	6.0	41.0	22.0		
M20592-08-10	12	- 8	1/2"	5/8" - 14		12.1	44.0	10.2	44.0	28.0		
M20592-08-12	12	- 8	1/2"	3/4" - 14		15.0	44.0	9.0	45.5	32.0		
M20592-10-08	16	- 10	5/8"	1/2" - 14		9.3	53.5	6.5	54.5	27.0		
M20592-10-10	16	- 10	5/8"	5/8" - 14		12.5	53.5	10.2	53.5	28.0		
M20592-10-12	16	- 10	5/8"	3/4" - 14		15.0	53.5	9.0	55.0	32.0		
M20592-12-08	19	- 12	3/4"	1/2" - 14		9.3	45.5	6.5	44.0	27.0		
M20592-12-12	19	- 12	3/4"	3/4" - 14		15.0	61.5	9.0	59.5	32.0		
M20592-12-16	19	- 12	3/4"	1" - 11		19.8	61.5	10.5	62.0	38.0		
M20592-16-12	25	- 16	1"	3/4" - 14		15.0	64.5	9.0	59.5	32.0		
M20592-16-16	25	- 16	1"	1" - 11		19.8	79.5	10.5	76.0	38.0		
M20593-03-04	5	- 3	3/16"	1/4" - 19		4.0	29.0	5.4	29.0	19.0		
M20593-04-04	6	- 4	1/4"	1/4" - 19		4.0	29.5	5.4	29.0	19.0		
M20593-04-06	6	- 4	1/4"	3/8" - 19		7.0	29.5	6.0	31.0	22.0		
M20593-05-06	8	- 5	5/16"	3/8" - 19		7.0	32.0	6.0	27.5	22.0		
M20593-05-08	8	- 5	5/16"	1/2" - 14		9.3	36.5	6.3	32.0	27.0		
M20593-06-06	10	- 6	3/8"	3/8" - 19		7.0	36.5	6.0	31.5	22.0		
M20593-06-08	10	- 6	3/8"	1/2" - 14		9.3	36.5	6.3	32.0	27.0		
M20593-08-08	12	- 8	1/2"	1/2" - 14		9.3	45.0	6.3	36.5	27.0		

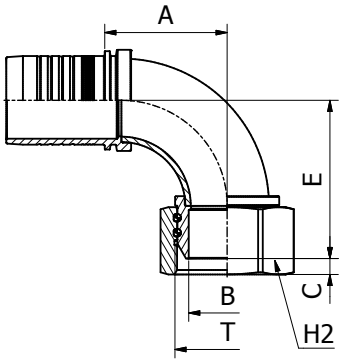


BS STANDARD CONNECTIONS

M20591KR

90° BSP FEMALE SWEPT ELBOW 60° CONE
BS5200 / ISO 12151-6

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M20591-04-04KR	6	- 4	1/4"	1/4" - 19		4.2	28.5	5.2	30.5	19.0		
M20591-04-06KR	6	- 4	1/4"	3/8" - 19		7.0	28.5	6.0	32.0	22.0		
M20591-06-06KR	10	- 6	3/8"	3/8" - 19		7.0	35.5	6.0	37.5	22.0		
M20591-06-08KR	10	- 6	3/8"	1/2" - 14		9.3	35.5	6.5	39.0	27.0		
M20591-08-06KR	12	- 8	1/2"	3/8" - 19		7.0	44.0	6.0	42.0	22.0		
M20591-08-08KR	12	- 8	1/2"	1/2" - 14		9.3	44.0	6.5	43.5	27.0		

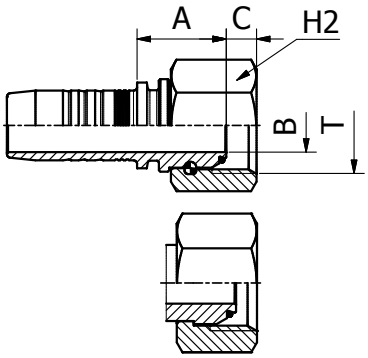


BS STANDARD CONNECTIONS

M20594

90° BSP FEMALE SWEPT ELBOW 60° CONE
BS5200 / ISO 12151-6

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M20594-40-40	63	- 40	2.1/2"	2.1/2"		55.4	88.0	11.5	114.0	85.0		
M20594-48-48	76	- 48	3"	3"		65.0	123.0	10.9	135.0	100.0		

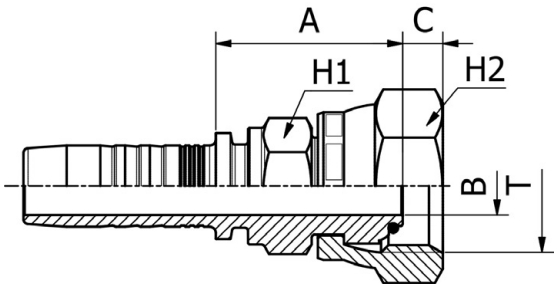


BS STANDARD CONNECTIONS

M20812/M20813

BSP O-RING FEMALE 60° CONE
BS5200 / ISO 12151-6

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H2			
M20812-06-04	10	- 6	3/8”	1/4” - 19		4.1	18.0	4.1	19.0			
M20812-10-10	16	- 10	5/8”	5/8” - 14		12.5	22.0	9.7	28.0			
M20812-12-12	19	- 12	3/4”	3/4” - 14		15.0	25.0	8.5	32.0			
M20812-16-12	25	- 16	1”	3/4” - 14		15.0	26.0	8.5	32.0			
M20812-16-16	25	- 16	1”	1” - 11		19.8	27.5	10.6	38.0			
M20812-16-20	25	- 16	1”	1.1/4” - 11		26.1	31.0	10.5	50.0			
M20812-20-16	31	- 20	1.1/4”	1” - 11		19.8	29.0	10.5	38.0			
M20812-20-20	31	- 20	1.1/4”	1.1/4” - 11		26.0	31.5	10.5	50.0			
M20812-20-24	31	- 20	1.1/4”	1.1/2” - 11		32.1	29.5	12.5	60.0			
M20812-24-20	38	- 24	1.1/2”	1.1/4” - 11		26.0	31.5	10.5	50.0			
M20812-24-24	38	- 24	1.1/2”	1.1/2” - 11		32.0	30.5	12.5	60.0			
M20812-24-32	38	- 24	1.1/2”	2” - 11		42.1	30.0	16.1	70.0			
M20812-32-32	51	- 32	2”	2” - 11		42.0	32.0	16.1	70.0			
M20813-03-04	5	- 3	3/16”	1/4” - 19		4.0	16.5	5.4	19.0			
M20813-04-04	6	- 4	1/4”	1/4” - 19		4.0	17.0	5.4	19.0			
M20813-04-06	6	- 4	1/4”	3/8” - 19		7.0	19.0	6.0	22.0			
M20813-06-06	10	- 6	3/8”	3/8” - 19		7.0	19.5	6.0	22.0			
M20813-06-08	10	- 6	3/8”	1/2” - 14		9.3	21.0	6.3	27.0			
M20813-08-08	12	- 8	1/2”	1/2” - 14		9.3	20.5	6.3	27.0			

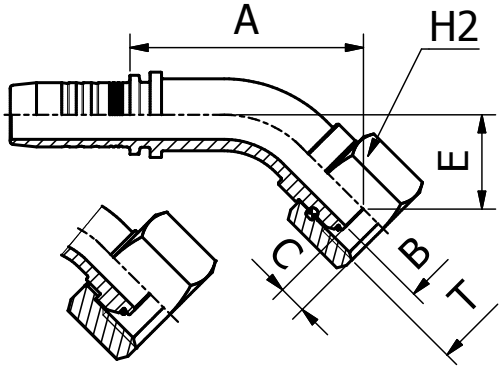


BS STANDARD CONNECTIONS

M20811HKR

BSP O-RING FEMALE 60° CONE
BS5200 / ISO 12151-6

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1	H2		
M20811-04-04H12KR	6	- 4	1/4”	1/4” - 19		4.0	25.0	5.2	12.0	19.0		
M20811-04-06H17KR	6	- 4	1/4”	3/8” - 19		7.0	27.0	6.0	17.0	22.0		
M20811-06-04H17KR	10	- 6	3/8”	1/4” - 19		4.0	26.0	5.2	17.0	19.0		
M20811-06-06H17KR	10	- 6	3/8”	3/8” - 19		7.0	27.5	6.0	17.0	22.0		
M20811-06-08H19KR	10	- 6	3/8”	1/2” - 14		9.3	29.5	6.5	19.0	27.0		
M20811-08-06H19KR	12	- 8	1/2”	3/8” - 19		7.0	29.5	6.0	19.0	22.0		
M20811-08-08H19KR	12	- 8	1/2”	1/2” - 14		9.3	30.0	5.5	19.0	27.0		

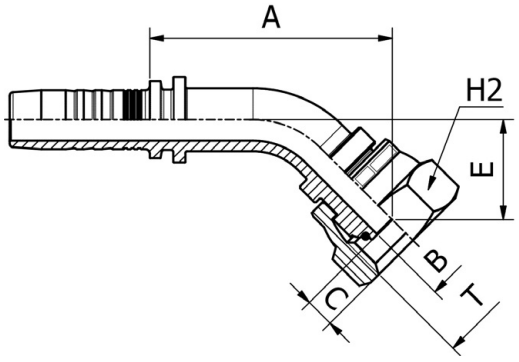


BS STANDARD CONNECTIONS

M20842/M20843

45° BSP O-RING FEMALE SWEPT ELBOW 60° CONE BS5200 / ISO 12151-6

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M20842-10-10	16	- 10	5/8”	5/8” - 14		12.5	63.5	9.7	27.5	28.0		
M20842-12-12	19	- 12	3/4”	3/4” - 14		15.0	71.0	8.5	29.0	32.0		
M20842-16-12	25	- 16	1”	3/4” - 14		15.0	79.5	8.5	29.0	32.0		
M20842-16-16	25	- 16	1”	1” - 11		19.8	90.5	10.6	35.5	38.0		
M20842-16-20	25	- 16	1”	1.1/4” - 11		26.1	93.0	10.5	38.0	50.0		
M20842-20-20	31	- 20	1.1/4”	1.1/4” - 11		26.0	101.5	10.5	39.0	50.0		
M20842-20-24	31	- 20	1.1/4”	1.1/2” - 11		32.1	118.5	12.5	40.5	60.0		
M20842-24-20	38	- 24	1.1/2”	1.1/4” - 11		26.0	106.0	10.5	42.0	50.0		
M20842-24-24	38	- 24	1.1/2”	1.1/2” - 11		32.0	118.0	12.5	45.0	60.0		
M20842-24-32	38	- 24	1.1/2”	2” - 11		42.1	117.5	16.1	44.5	70.0		
M20842-32-32	51	- 32	2”	2” - 11		42.0	134.0	16.1	47.0	70.0		
M20843-04-04	6	- 4	1/4”	1/4” - 19		4.0	36.0	5.4	14.5	19.0		
M20843-06-06	10	- 6	3/8”	3/8” - 19		7.0	42.0	6.0	15.5	22.0		
M20843-08-08	12	- 8	1/2”	1/2” - 14		9.3	49.5	6.3	17.0	27.0		

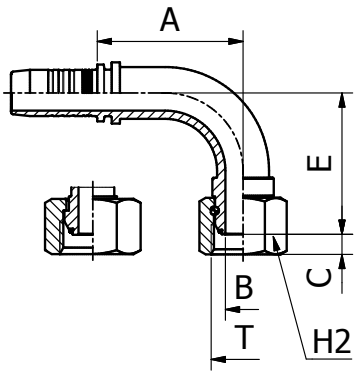


BS STANDARD CONNECTIONS

M20841KR

45° BSP O-RING FEMALE 60° CONE BS5200 / ISO 12151-6

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M20841-04-04KR	6	- 4	1/4”	1/4” - 19		4.2	38.0	5.2	16.6	19.0		
M20841-06-06KR	10	- 6	3/8”	3/8” - 19		7.0	45.5	6.0	16.5	22.0		
M20841-08-08KR	12	- 8	1/2”	1/2” - 14		9.3	54.0	6.5	22.0	27.0		

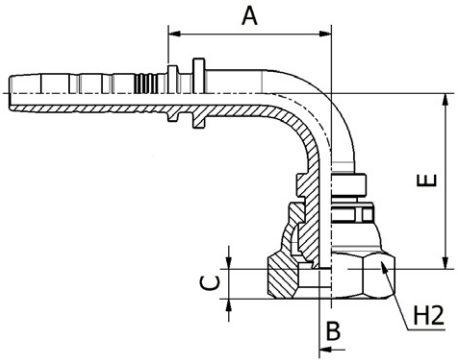


BS STANDARD CONNECTIONS

M20892/M20893

90° BSP O-RING FEMALE SWEPT ELBOW 60° CONE BS5200 / ISO 12151-6

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M20892-06-04	10	- 6	3/8”	1/4” - 19		4.1	35.5	4.1	33.0	19.0		
M20892-10-10	16	- 10	5/8”	5/8” - 14		12.5	53.0	9.7	55.0	28.0		
M20892-12-12	19	- 12	3/4”	3/4” - 14		15.0	61.5	8.5	60.0	32.0		
M20892-12-16	19	- 12	3/4”	1” - 11		19.8	61.5	10.6	62.0	38.0		
M20892-16-12	25	- 16	1”	3/4” - 14		15.0	79.5	8.5	60.0	32.0		
M20892-16-16	25	- 16	1”	1” - 11		19.8	79.5	10.6	76.0	38.0		
M20892-16-20	25	- 16	1”	1.1/4” - 11		26.1	79.5	10.5	78.5	50.0		
M20892-20-16	31	- 20	1.1/4”	1” - 11		19.8	79.5	10.6	76.0	38.0		
M20892-20-20	31	- 20	1.1/4”	1.1/4” - 11		26.0	90.5	10.5	83.5	50.0		
M20892-20-24	31	- 20	1.1/4”	1.1/2” - 11		32.1	90.5	12.5	84.5	60.0		
M20892-24-20	38	- 24	1.1/2”	1.1/4” - 11		26.0	95.0	10.5	90.5	50.0		
M20892-24-24	38	- 24	1.1/2”	1.1/2” - 11		32.0	108.0	12.5	98.5	60.0		
M20892-24-32	38	- 24	1.1/2”	2” - 11		42.1	108.0	16.1	98.0	70.0		
M20892-32-32	51	- 32	2”	2” - 11		42.0	131.0	16.1	110.5	70.0		
M20893-03-04	5	- 3	3/16”	1/4” - 19		4.0	29.0	5.4	29.0	19.0		
M20893-04-04	6	- 4	1/4”	1/4” - 19		4.0	29.5	5.4	29.0	19.0		
M20893-06-06	10	- 6	3/8”	3/8” - 19		7.0	36.5	6.0	31.5	22.0		
M20893-08-08	12	- 8	1/2”	1/2” - 14		9.3	45.0	6.3	36.5	27.0		

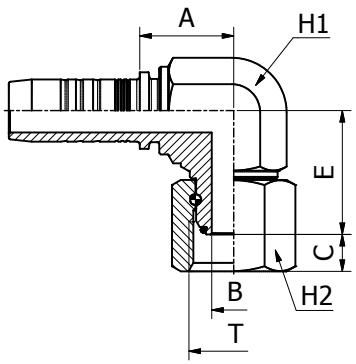


BS STANDARD CONNECTIONS

M20891KR

90° BSP O-RING FEMALE 60° CONE BS5200 / ISO 12151-6

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M20891-04-04KR	6	- 4	1/4”	1/4” - 19		4.2	28.5	5.2	30.5	19.0		
M20891-04-06KR	6	- 4	1/4”	3/8” - 19		7.0	28.5	6.0	32.0	22.0		
M20891-06-04KR	10	- 6	3/8”	1/4” - 19		4.0	37.5	5.2	36.0	19.0		
M20891-06-06KR	10	- 6	3/8”	3/8” - 19		7.0	35.5	6.0	37.5	22.0		
M20891-06-08KR	10	- 6	3/8”	1/2” - 14		9.3	35.5	6.5	39.0	27.0		
M20891-08-06KR	12	- 8	1/2”	3/8” - 19		7.0	44.0	6.0	42.0	22.0		
M20891-08-08KR	12	- 8	1/2”	1/2” - 14		9.3	44.0	5.5	43.5	22.0		

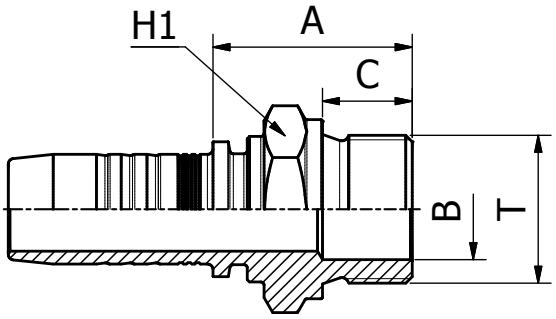


BS STANDARD CONNECTIONS

M20882F

90° BSP O-RING FEMALE COMPACT ELBOW 60° CONE BS5200 / ISO 12151-6 (THRUST-WIRE NUT)

PART. REF.	HOSE BORE		Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H1	H2	
M20882-04-04F	6	- 4	1/4"	1/4" - 19		4.0	20.0	4.1	22.0	14.0	19.0	
M20882-06-06F	10	- 6	3/8"	3/8" - 19		7.0	23.0	6.0	27.5	19.0	22.0	
M20882-08-08F	12	- 8	1/2"	1/2" - 14		9.3	25.0	6.5	31.0	22.0	27.0	
M20882-10-10F	16	- 10	5/8"	5/8" - 14		12.5	24.5	9.7	32.5	24.0	28.0	
M20882-12-12F	19	- 12	3/4"	3/4" - 14		15.0	37.5	8.5	36.0	27.0	32.0	
M20882-16-16F	25	- 16	1"	1" - 11		20.0	52.0	10.6	44.0	36.0	38.0	

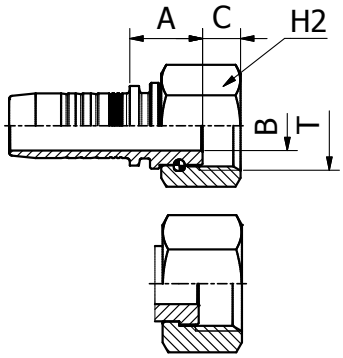


BS STANDARD CONNECTIONS

M10610

BSP MALE FLAT SEAT

PART. REF.	HOSE BORE		Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1			
M10610-04-04	6	- 4	1/4"	1/4" - 19		6.0	25.5	11.0	19.0			
M10610-06-06	10	- 6	3/8"	3/8" - 19		9.5	28.0	12.0	22.0			
M10610-06-08	10	- 6	3/8"	1/2" - 14		13.0	30.5	14.0	27.0			
M10610-08-08	12	- 8	1/2"	1/2" - 14		13.0	31.0	14.0	27.0			
M10610-10-08	16	- 10	5/8"	1/2" - 14		13.0	31.0	14.0	27.0			
M10610-12-12	19	- 12	3/4"	3/4" - 14		18.0	35.5	16.0	32.0			

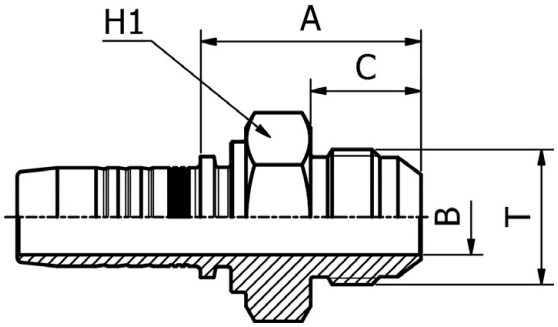


BS STANDARD CONNECTIONS

M20612/M20613

BSP FEMALE FLAT SEAT

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H2			
M20612-08-12	12	- 8	1/2”	3/4” - 14		15.0	21.0	11.5	32.0			
M20612-10-12	16	- 10	5/8”	3/4” - 14		15.0	20.5	11.5	32.0			
M20612-12-12	19	- 12	3/4”	3/4” - 14		15.0	22.0	11.5	32.0			
M20612-12-16	19	- 12	3/4”	1” - 11		19.8	23.5	13.0	38.0			
M20612-16-16	25	- 16	1”	1” - 11		19.8	25.0	13.0	38.0			
M20612-20-20	31	- 20	1.1/4”	1.1/4” - 11		26.0	26.0	15.0	50.0			
M20613-04-04	6	- 4	1/4”	1/4” - 19		4.0	14.5	7.9	19.0			
M20613-05-06	8	- 5	5/16”	3/8” - 19		7.0	16.0	9.0	22.0			
M20613-06-06	10	- 6	3/8”	3/8” - 19		7.0	16.5	9.0	22.0			
M20613-06-08	10	- 6	3/8”	1/2” - 14		9.3	17.5	9.8	27.0			
M20613-08-08	12	- 8	1/2”	1/2” - 14		9.3	18.0	9.8	27.0			

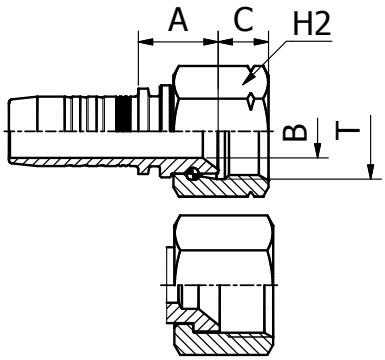


SAE STANDARD CONNECTIONS

M12510

JIC MALE 37° CONE
SAE J516 / ISO 12151-5

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1			
M12510-04-04	6	- 4	1/4”	7/16” - 20		4.0	28.0	14.0	12.0			
M12510-04-05	6	- 4	1/4”	1/2” - 20		5.5	29.0	14.0	14.0			
M12510-04-06	6	- 4	1/4”	9/16” - 18		7.0	29.0	14.0	17.0			
M12510-05-04	8	- 5	5/16”	7/16” - 20		4.0	29.0	14.0	14.0			
M12510-05-05	8	- 5	5/16”	1/2” - 20		5.5	29.0	14.0	14.0			
M12510-05-06	8	- 5	5/16”	9/16” - 18		7.0	29.0	14.0	17.0			
M12510-06-05	10	- 6	3/8”	1/2” - 20		5.5	29.5	14.0	17.0			
M12510-06-06	10	- 6	3/8”	9/16” - 18		7.0	29.5	14.0	17.0			
M12510-06-08	10	- 6	3/8”	3/4” - 16		9.3	34.0	16.5	19.0			
M12510-06-10	10	- 6	3/8”	7/8” - 14		12.5	38.5	19.5	24.0			
M12510-08-06	12	- 8	1/2”	9/16” - 18		7.0	32.0	14.0	19.0			
M12510-08-08	12	- 8	1/2”	3/4” - 16		9.3	34.5	16.5	19.0			
M12510-08-10	12	- 8	1/2”	7/8” - 14		12.5	39.0	19.5	24.0			
M12510-08-12	12	- 8	1/2”	1.1/16” - 12		15.0	43.0	22.0	27.0			
M12510-10-10	16	- 10	5/8”	7/8” - 14		12.5	39.0	19.5	24.0			
M12510-10-12	16	- 10	5/8”	1.1/16” - 12		15.0	42.5	22.0	27.0			
M12510-12-10	19	- 12	3/4”	7/8” - 14		12.5	41.5	19.5	27.0			
M12510-12-12	19	- 12	3/4”	1.1/16” - 12		15.0	44.0	22.0	27.0			
M12510-12-14	19	- 12	3/4”	1.3/16” - 12		15.0	44.5	22.5	32.0			
M12510-12-16	19	- 12	3/4”	1.5/16” - 12		19.8	47.0	23.0	34.0			
M12510-16-12	25	- 16	1”	1.1/16” - 12		15.0	45.0	22.0	32.0			
M12510-16-16	25	- 16	1”	1.5/16” - 12		19.8	48.0	23.0	34.0			
M12510-16-20	25	- 16	1”	1.5/8” - 12		26.0	53.0	24.3	42.0			
M12510-20-20	31	- 20	1.1/4”	1.5/8” - 12		26.0	53.5	24.3	42.0			
M12510-20-24	31	- 20	1.1/4”	1.7/8” - 12		32.0	60.5	27.5	50.0			
M12510-24-24	38	- 24	1.1/2”	1.7/8” - 12		32.0	60.5	27.5	50.0			
M12510-32-32	51	- 32	2”	2.1/2” - 12		42.0	72.0	34.0	65.0			



SAE STANDARD CONNECTIONS

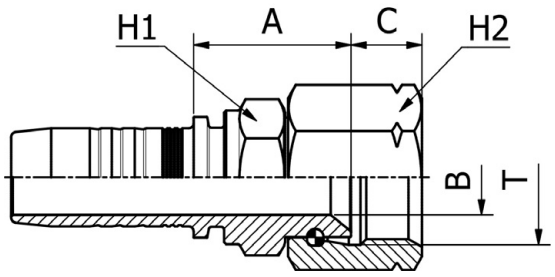
M22512/M22513

JIC FEMALE 37° CONE SEAT
SAE J516 / ISO 12151-5

PART. REF.	HOSE BORE		Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H2			
M22512-03-05	5	- 3	3/16”	1/2” - 20		4.0	15.5	9.1	17.0			
M22512-04-04	6	- 4	1/4”	7/16” - 20		4.0	15.5	8.7	17.0			
M22512-04-05	6	- 4	1/4”	1/2” - 20		4.0	16.0	9.1	17.0			
M22512-05-04	8	- 5	5/16”	7/16” - 20		4.0	15.5	8.7	17.0			
M22512-05-05	8	- 5	5/16”	1/2” - 20		5.5	16.0	9.1	17.0			
M22512-05-06	8	- 5	5/16”	9/16” - 18		7.0	15.5	9.2	19.0			
M22512-06-05	10	- 6	3/8”	1/2” - 20		5.5	16.5	9.1	17.0			
M22512-06-06	10	- 6	3/8”	9/16” - 18		7.0	16.0	9.2	19.0			
M22512-08-08	12	- 8	1/2”	3/4” - 16		9.3	20.0	10.2	22.0			
M22512-10-10	16	- 10	5/8”	7/8” - 14		12.5	20.0	12.3	27.0			
M22512-12-08	19	- 12	3/4”	3/4” - 16		9.3	21.5	10.2	22.0			
M22512-12-10	19	- 12	3/4”	7/8” - 14		12.5	21.5	12.3	27.0			
M22512-12-12	19	- 12	3/4”	1.1/16” - 12		15.0	22.5	14.2	32.0			
M22512-12-14	19	- 12	3/4”	1.3/16” - 12		15.0	23.0	14.3	36.0			
M22512-12-16	19	- 12	3/4”	1.5/16” - 12		19.8	23.0	15.0	38.0			
M22512-16-12	25	- 16	1”	1.1/16” - 12		15.0	23.5	14.2	32.0			
M22512-16-16	25	- 16	1”	1.5/16” - 12		19.8	24.0	15.0	38.0			
M22512-16-20	25	- 16	1”	1.5/8” - 12		26.0	30.0	16.2	50.0			
M22512-20-20	31	- 20	1.1/4”	1.5/8” - 12		26.0	30.0	16.2	50.0			
M22512-20-24	31	- 20	1.1/4”	1.7/8” - 12		32.0	35.0	18.8	60.0			
M22512-24-24	38	- 24	1.1/2”	1.7/8” - 12		32.0	35.0	18.8	60.0			
M22512-32-24	51	- 32	2”	1.7/8” - 12		32.0	37.0	18.8	60.0			
M22512-32-32	51	- 32	2”	2.1/2” - 12		44.0	35.5	24.0	75.0			
M22513-03-04	5	- 3	3/16”	7/16” - 20		3.0	15.0	8.0	15.0			
M22513-04-06	6	- 4	1/4”	9/16” - 18		4.0	16.5	9.8	19.0			
M22513-05-08	8	- 5	5/16”	3/4” - 16		5.5	17.0	10.1	22.0			
M22513-06-08	10	- 6	3/8”	3/4” - 16		7.0	17.5	10.1	22.0			
M22513-06-10	10	- 6	3/8”	7/8” - 14		9.3	18.0	12.4	27.0			
M22513-08-10	12	- 8	1/2”	7/8” - 14		9.3	18.5	12.4	27.0			
M22513-08-12	12	- 8	1/2”	1.1/16” - 12		12.5	22.0	14.1	32.0			
M22513-10-12	16	- 10	5/8”	1.1/16” - 12		12.5	21.5	14.1	32.0			

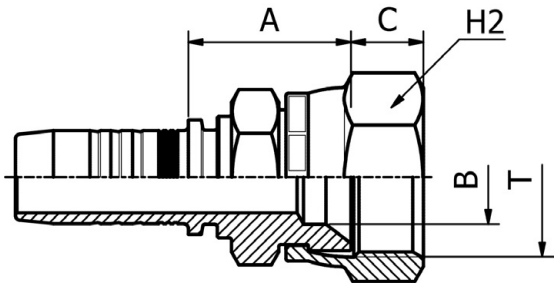
SAE STANDARD CONNECTIONS

M22712



JIC FEMALE 37° CONE SEAT DOUBLE HEXAGON
SAE J516 / ISO 12151-5 (THRUST-WIRE NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1	H2		
M22712-03-04	5	- 3	3/16”	7/16” - 20		4.0	20.5	8.7	12.0	17.0		
M22712-04-04	6	- 4	1/4”	7/16” - 20		4.0	21.0	8.7	12.0	17.0		
M22712-04-05	6	- 4	1/4”	1/2” - 20		4.0	21.5	9.1	12.0	17.0		
M22712-04-06	6	- 4	1/4”	9/16” - 18		7.0	24.0	9.2	14.0	19.0		
M22712-05-05	8	- 5	5/16”	1/2” - 20		5.5	21.5	9.1	14.0	17.0		
M22712-05-06	8	- 5	5/16”	9/16” - 18		7.0	24.0	9.2	14.0	19.0		
M22712-05-08	8	- 5	5/16”	3/4” - 16		9.3	26.0	10.2	19.0	22.0		
M22712-06-04	10	- 6	3/8”	7/16” - 20		4.0	24.5	8.7	17.0	17.0		
M22712-06-05	10	- 6	3/8”	1/2” - 20		5.5	25.0	9.1	17.0	17.0		
M22712-06-06	10	- 6	3/8”	9/16” - 18		7.0	24.5	9.2	17.0	19.0		
M22712-06-08	10	- 6	3/8”	3/4” - 16		9.3	27.0	10.2	19.0	22.0		
M22712-06-10	10	- 6	3/8”	7/8” - 14		12.5	28.0	12.3	22.0	27.0		
M22712-08-06	12	- 8	1/2”	9/16” - 18		7.0	24.5	9.2	19.0	19.0		
M22712-08-08	12	- 8	1/2”	3/4” - 16		9.3	27.5	10.2	19.0	22.0		
M22712-08-10	12	- 8	1/2”	7/8” - 14		12.5	28.5	12.3	22.0	27.0		
M22712-08-12	12	- 8	1/2”	1.1/16” - 12		14.0	30.0	14.2	27.0	32.0		
M22712-10-08	16	- 10	5/8”	3/4” - 16		9.3	28.5	10.2	22.0	22.0		
M22712-10-10	16	- 10	5/8”	7/8” - 14		12.5	28.5	12.3	22.0	27.0		
M22712-10-12	16	- 10	5/8”	1.1/16” - 12		15.0	30.0	14.2	27.0	32.0		
M22712-12-08	19	- 12	3/4”	3/4” - 16		9.3	30.0	10.2	27.0	22.0		
M22712-12-10	19	- 12	3/4”	7/8” - 14		12.5	30.0	12.3	27.0	27.0		
M22712-12-12	19	- 12	3/4”	1.1/16” - 12		15.0	31.5	14.2	27.0	32.0		
M22712-12-14	19	- 12	3/4”	1.3/16” - 12		15.0	33.0	14.3	30.0	36.0		
M22712-12-16	19	- 12	3/4”	1.5/16” - 12		19.8	32.5	15.0	32.0	38.0		
M22712-16-12	25	- 16	1”	1.1/16” - 12		12.5	34.0	14.2	32.0	32.0		
M22712-16-16	25	- 16	1”	1.5/16” - 12		19.8	34.5	15.0	32.0	38.0		
M22712-16-20	25	- 16	1”	1.5/8” - 12		26.0	43.0	16.2	41.0	50.0		
M22712-20-16	31	- 20	1.1/4”	1.5/16” - 12		19.8	36.0	15.0	38.0	38.0		
M22712-20-20	31	- 20	1.1/4”	1.5/8” - 12		26.0	43.5	16.2	41.0	50.0		
M22712-24-24	38	- 24	1.1/2”	1.7/8” - 12		32.0	51.0	18.8	50.0	60.0		
M22712-32-32	51	- 32	2”	2.1/2” - 12		44.0	51.5	24.0	65.0	75.0		

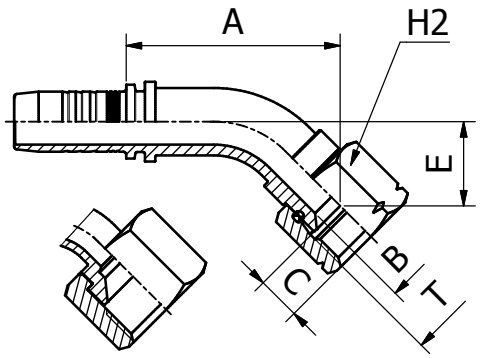


SAE STANDARD CONNECTIONS

M22711/M22711KR

JIC FEMALE
37° CONE SEAT DOUBLE HEXAGON
SAE J516 / ISO 12151-5

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1	H2		
M22711-12-16	19	- 12	3/4”	1.5/16” - 12		19.8	34.5	15.3	32.0	38.0		
M22711-16-16	25	- 16	1”	1.5/16” - 12		19.8	35.5	15.3	32.0	38.0		
M22711-20-20	31	- 20	1.1/4”	1.5/8” - 12		26.0	42.0	16.1	41.0	50.0		
M22711-24-24	38	- 24	1.1/2”	1.7/8” - 12		32.0	46.5	18.6	50.0	60.0		
M22711-32-32	51	- 32	2”	2.1/2” - 12		42.0	50.5	23.5	65.0	75.0		
M22711-04-04KR	6	- 4	1/4”	7/16” - 20		4.0	20.5	8.9	12.0	15.0		
M22711-04-05KR	6	- 4	1/4”	1/2” - 20		4.0	21.0	9.4	14.0	17.0		
M22711-04-06KR	6	- 4	1/4”	9/16” - 18		7.0	21.5	9.5	14.0	17.0		
M22711-06-04KR	10	- 6	3/8”	7/16” - 20		4.0	21.5	8.9	17.0	15.0		
M22711-06-05KR	10	- 6	3/8”	1/2” - 20		4.0	22.0	9.4	17.0	17.0		
M22711-06-06KR	10	- 6	3/8”	9/16” - 18		7.0	22.0	9.5	17.0	17.0		
M22711-06-08KR	10	- 6	3/8”	3/4” - 16		9.3	26.5	10.7	19.0	22.0		
M22711-08-08KR	12	- 8	1/2”	3/4” - 16		9.3	27.0	10.7	19.0	22.0		
M22711-08-10KR	12	- 8	1/2”	7/8” - 14		9.3	29.5	12.5	22.0	25.0		
M22711-08-12KR	12	- 8	1/2”	1.1/16” - 12		15.0	28.5	14.1	27.0	32.0		
M22711-10-08KR	16	- 10	5/8”	3/4” - 16		9.3	28.5	10.7	22.0	22.0		
M22711-10-10KR	16	- 10	5/8”	7/8” - 14		12.5	29.5	12.5	22.0	25.0		
M22711-10-12KR	16	- 10	5/8”	1.1/16” - 12		15.0	29.0	14.1	27.0	32.0		
M22711-12-08KR	19	- 12	3/4”	3/4” - 16		9.3	29.5	10.7	27.0	22.0		
M22711-12-10KR	19	- 12	3/4”	7/8” - 14		12.5	30.5	12.5	27.0	25.0		
M22711-12-12KR	19	- 12	3/4”	1.1/16” - 12		15.0	30.0	14.1	27.0	32.0		
M22711-16-12KR	25	- 16	1”	1.1/16” - 12		15.0	32.5	14.1	32.0	32.0		

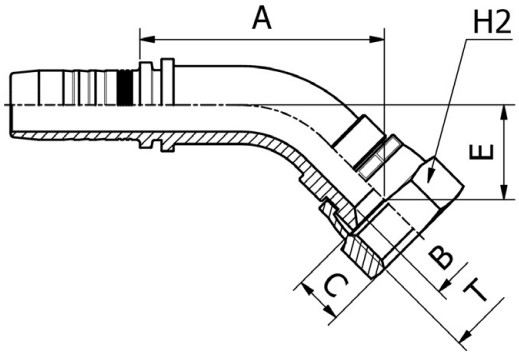


SAE STANDARD CONNECTIONS

M22542/M22543

45° JIC FEMALE SWEPT ELBOW
37° CONE SEAT
SAE J516 / ISO 12151-5

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M22542-03-04	5	- 3	3/16”	7/16” - 20		4.0	35.0	8.7	14.5	17.0		
M22542-04-04	6	- 4	1/4”	7/16” - 20		4.0	35.5	8.7	14.5	17.0		
M22542-04-05	6	- 4	1/4”	1/2” - 20		4.0	35.5	9.1	14.5	17.0		
M22542-05-05	8	- 5	5/16”	1/2” - 20		5.5	37.5	9.1	14.0	17.0		
M22542-05-06	8	- 5	5/16”	9/16” - 18		7.0	38.0	9.2	14.5	19.0		
M22542-06-06	10	- 6	3/8”	9/16” - 18		7.0	42.0	9.2	16.5	19.0		
M22542-08-06	12	- 8	1/2”	9/16” - 18		7.0	43.0	9.2	16.5	19.0		
M22542-08-08	12	- 8	1/2”	3/4” - 16		9.3	52.0	10.2	20.0	22.0		
M22542-10-10	16	- 10	5/8”	7/8” - 14		12.5	62.0	12.3	25.5	27.0		
M22542-12-08	19	- 12	3/4”	3/4” - 16		9.3	53.5	10.2	20.0	22.0		
M22542-12-10	19	- 12	3/4”	7/8” - 14		12.5	63.5	12.3	25.0	27.0		
M22542-12-12	19	- 12	3/4”	1.1/16” - 12		15.0	70.0	14.2	27.5	32.0		
M22542-12-14	19	- 12	3/4”	1.3/16” - 12		15.0	69.5	14.3	27.5	36.0		
M22542-12-16	19	- 12	3/4”	1.5/16” - 12		19.8	70.0	15.0	27.5	38.0		
M22542-16-12	25	- 16	1”	1.1/16” - 12		15.0	72.5	14.2	27.5	32.0		
M22542-16-16	25	- 16	1”	1.5/16” - 12		19.8	84.0	15.0	32.0	38.0		
M22542-16-20	25	- 16	1”	1.5/8” - 12		26.0	90.0	16.2	36.0	50.0		
M22542-20-20	31	- 20	1.1/4”	1.5/8” - 12		26.0	103.5	16.2	41.5	50.0		
M22542-20-24	31	- 20	1.1/4”	1.7/8” - 12		32.0	106.5	18.8	44.5	60.0		
M22542-24-24	38	- 24	1.1/2”	1.7/8” - 12		32.0	119.0	18.8	46.5	60.0		
M22542-32-32	51	- 32	2”	2.1/2” - 12		44.0	163.0	24.0	68.0	75.0		
M22543-04-06	6	- 4	1/4”	9/16” - 18		4.0	35.5	9.8	14.0	19.0		
M22543-06-08	10	- 6	3/8”	3/4” - 16		7.0	41.0	10.1	14.0	22.0		
M22543-06-10	10	- 6	3/8”	7/8” - 14		9.3	42.5	12.4	15.5	27.0		
M22543-08-10	12	- 8	1/2”	7/8” - 14		9.3	49.5	12.4	17.0	27.0		
M22543-08-12	12	- 8	1/2”	1.1/16” - 12		12.5	49.5	14.1	17.0	32.0		
M22543-10-12	16	- 10	5/8”	1.1/16” - 12		12.5	60.0	14.1	24.0	32.0		

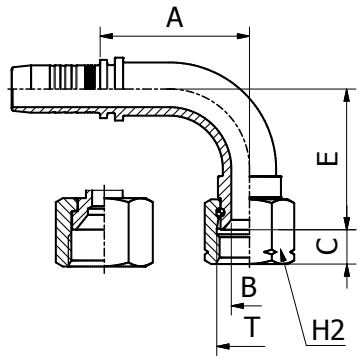


SAE STANDARD CONNECTIONS

M22541KR

45° JIC FEMALE SWEPT ELBOW
37° CONE SEAT
SAE J516 / ISO 12151-5

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M22541-04-04KR	6	- 4	1/4”	7/16” - 20		4.2	34.5	8.9	13.5	15.0		
M22541-04-05KR	6	- 4	1/4”	1/2” - 20		4.0	35.0	9.4	14.0	17.0		
M22541-06-06KR	10	- 6	3/8”	9/16” - 18		7.0	42.0	9.5	16.0	17.0		
M22541-08-08KR	12	- 8	1/2”	3/4” - 16		9.3	52.0	10.7	20.0	22.0		
M22541-10-10KR	16	- 10	5/8”	7/8” - 14		12.5	61.0	12.5	22.5	25.0		
M22541-12-12KR	19	- 12	3/4”	1.1/16” - 12		15.0	69.0	14.1	26.5	32.0		

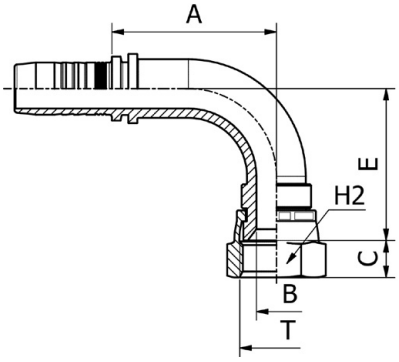


SAE STANDARD CONNECTIONS

M22592/M22593

90° JIC FEMALE SWEPT ELBOW 37° CONE SEAT
SAE J516 / ISO 12151-5

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M22592-04-04	6	- 4	1/4”	7/16” - 20		4.0	28.5	8.7	27.0	17.0		
M22592-04-05	6	- 4	1/4”	1/2” - 20		4.0	28.5	9.1	27.5	17.0		
M22592-05-05	8	- 5	5/16”	1/2” - 20		5.5	31.0	9.1	28.0	17.0		
M22592-05-06	8	- 5	5/16”	9/16” - 18		7.0	31.0	9.2	28.5	19.0		
M22592-06-05	10	- 6	3/8”	1/2” - 20		5.5	30.0	9.1	26.5	17.0		
M22592-06-06	10	- 6	3/8”	9/16” - 18		7.0	35.5	9.2	32.5	19.0		
M22592-08-06	12	- 8	1/2”	9/16” - 18		7.0	37.0	9.2	33.0	19.0		
M22592-08-08	12	- 8	1/2”	3/4” - 16		9.3	44.0	10.2	41.0	22.0		
M22592-10-10	16	- 10	5/8”	7/8” - 14		12.5	53.5	12.3	52.5	27.0		
M22592-12-10	19	- 12	3/4”	7/8” - 14		12.5	55.0	12.3	52.5	27.0		
M22592-12-12	19	- 12	3/4”	1.1/16” - 12		15.0	62.0	14.2	58.0	32.0		
M22592-12-14	19	- 12	3/4”	1.3/16” - 12		15.0	63.0	14.3	58.0	36.0		
M22592-12-16	19	- 12	3/4”	1.5/16” - 12		19.8	63.0	15.0	57.5	38.0		
M22592-16-16	25	- 16	1”	1.5/16” - 12		19.8	77.0	15.0	68.5	38.0		
M22592-16-20	25	- 16	1”	1.5/8” - 12		26.0	77.5	16.2	74.5	50.0		
M22592-20-20	31	- 20	1.1/4”	1.5/8” - 12		26.0	90.5	16.2	86.5	50.0		
M22592-20-24	31	- 20	1.1/4”	1.7/8” - 12		32.0	90.5	18.8	90.5	60.0		
M22592-24-24	38	- 24	1.1/2”	1.7/8” - 12		32.0	108.0	18.8	100.5	60.0		
M22592-32-32	51	- 32	2”	2.1/2” - 12		44.0	142.0	24.0	137.0	75.0		
M22593-03-04	5	- 3	3/16”	7/16” - 20		3.0	26.0	8.5	23.5	15.0		
M22593-04-06	6	- 4	1/4”	9/16” - 18		4.0	29.5	9.8	28.0	19.0		
M22593-04-08	6	- 4	1/4”	3/4” - 16		7.0	29.5	10.0	30.5	22.0		
M22593-06-08	10	- 6	3/8”	3/4” - 16		7.0	36.5	10.1	29.5	22.0		
M22593-06-10	10	- 6	3/8”	7/8” - 14		9.3	36.5	12.4	31.5	27.0		
M22593-08-10	12	- 8	1/2”	7/8” - 14		9.3	45.0	12.4	36.0	27.0		
M22593-08-12	12	- 8	1/2”	1.1/16” - 12		12.5	45.0	14.1	36.0	32.0		
M22593-10-12	16	- 10	5/8”	1.1/16” - 12		12.5	51.5	14.1	50.0	32.0		

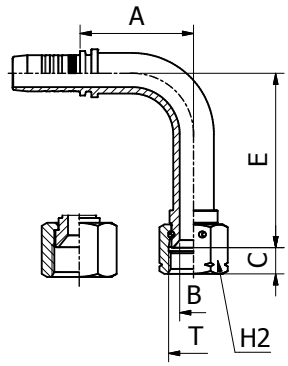


SAE STANDARD CONNECTIONS

M22591KR

90° JIC FEMALE SWEPT ELBOW 37° CONE SEAT
SAE J516 / ISO 12151-5

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M22591-04-04KR	6	- 4	1/4”	7/16” - 20		4.2	28.5	8.9	26.0	15.0		
M22591-04-05KR	6	- 4	1/4”	1/2” - 20		4.0	28.5	9.4	26.5	17.0		
M22591-06-06KR	10	- 6	3/8”	9/16” - 18		7.0	35.5	9.5	32.0	17.0		
M22591-08-08KR	12	- 8	1/2”	3/4” - 16		9.3	44.0	10.7	40.5	22.0		
M22591-10-10KR	16	- 10	5/8”	7/8” - 14		12.5	53.5	12.5	47.0	25.0		
M22591-12-12KR	19	- 12	3/4”	1.1/16” - 12		15.0	62.0	14.1	57.0	32.0		
M22591-16-12KR	25	- 16	1”	1.1/16” - 12		15.0	62.0	14.1	57.0	32.0		

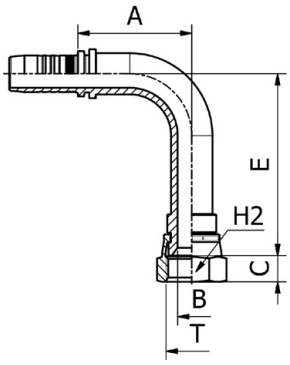


SAE STANDARD CONNECTIONS

M24792/M24793

90° JIC FEMALE LONG DROP ELBOW
37° CONE SEAT
SAE J516 / ISO 12151-5

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M24792-04-04	6	- 4	1/4”	7/16” - 20		4.0	28.5	8.7	45.0	17.0		
M24792-04-05	6	- 4	1/4”	1/2” - 20		4.0	28.5	9.1	45.0	17.0		
M24792-06-06	10	- 6	3/8”	9/16” - 18		7.0	35.5	9.2	55.0	19.0		
M24792-08-08	12	- 8	1/2”	3/4” - 16		9.3	44.0	10.2	61.0	22.0		
M24792-10-10	16	- 10	5/8”	7/8” - 14		12.5	53.5	12.3	65.5	27.0		
M24792-12-12	19	- 12	3/4”	1.1/16” - 12		15.0	62.0	14.2	94.5	32.0		
M24792-16-16	25	- 16	1”	1.5/16” - 12		19.8	77.5	15.0	110.0	38.0		
M24792-20-20	31	- 20	1.1/4”	1.5/8” - 12		26.0	90.5	16.2	129.0	50.0		
M24793-04-06	6	- 4	1/4”	9/16” - 18		4.0	29.5	9.8	55.5	19.0		
M24793-06-08	10	- 6	3/8”	3/4” - 16		7.0	36.5	10.1	61.5	22.0		
M24793-08-10	12	- 8	1/2”	7/8” - 14		9.3	45.0	12.4	65.0	27.0		

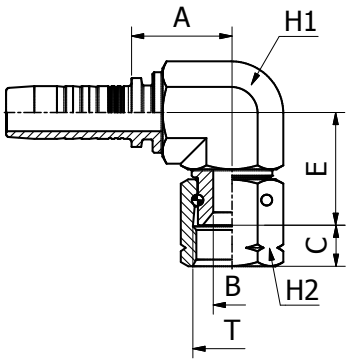


SAE STANDARD CONNECTIONS

M24791KR

90° JIC FEMALE LONG DROP ELBOW
37° CONE SEAT
SAE J516 / ISO 12151-5

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M24791-04-04KR	6	- 4	1/4”	7/16” - 20		4.2	28.5	8.9	45.0	15.0		
M24791-06-06KR	10	- 6	3/8”	9/16” - 18		7.0	35.5	9.5	55.0	17.0		
M24791-08-08KR	12	- 8	1/2”	3/4” - 16		9.3	44.0	10.7	64.0	22.0		
M24791-10-10KR	16	- 10	5/8”	7/8” - 14		12.5	53.5	12.5	70.0	25.0		
M24791-12-12KR	19	- 12	3/4”	1.1/16” - 12		15.0	62.0	14.1	96.0	32.0		

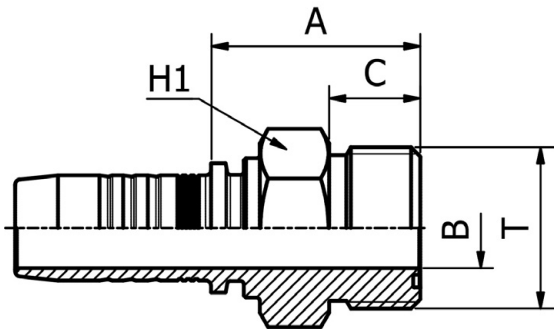


SAE STANDARD CONNECTIONS

M22582F

90° JIC FEMALE COMPACT ELBOW
37° CONE SEAT
SAE J516 / ISO 12151-5 (THRUST-WIRE NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H1	H2	
M22582-04-04F	6	- 4	1/4”	7/16” - 20		4.0	20.0	8.7	20.5	14.0	17.0	
M22582-04-06F	6	- 4	1/4”	9/16” - 18		7.0	20.0	9.2	21.5	14.0	19.0	
M22582-06-06F	10	- 6	3/8”	9/16” - 18		7.0	23.0	9.2	24.0	19.0	19.0	
M22582-06-08F	10	- 6	3/8”	3/4” - 16		9.3	26.5	10.2	28.0	22.0	22.0	
M22582-08-08F	12	- 8	1/2”	3/4” - 16		9.3	25.0	10.2	28.0	22.0	22.0	
M22582-08-10F	12	- 8	1/2”	7/8” - 14		12.5	25.0	12.3	29.0	22.0	27.0	
M22582-12-12F	19	- 12	3/4”	1.1/16” - 12		15.0	37.5	14.2	33.0	27.0	32.0	
M22582-16-16F	25	- 16	1”	1.5/16” - 12		20.0	52.0	15.0	40.0	36.0	38.0	



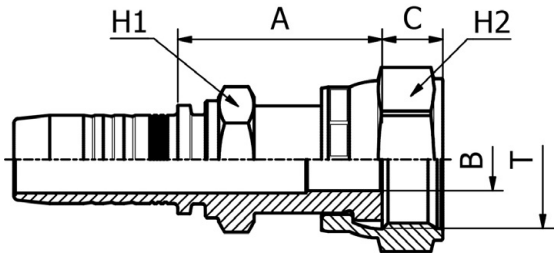
SAE STANDARD CONNECTIONS

M12410

ORFS MALE
SAE J516 / ISO 12151-1

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1			
M12410-04-04	6	- 4	1/4”	9/16” - 18		4.0	24.0	9.8	16.0			
M12410-04-06	6	- 4	1/4”	11/16” - 16		6.7	26.5	11.2	19.0			
M12410-05-06	8	- 5	5/16”	11/16” - 16		6.7	27.0	11.2	19.0			
M12410-06-06	10	- 6	3/8”	11/16” - 16		6.7	27.5	11.2	19.0			
M12410-06-08	10	- 6	3/8”	13/16” - 16		9.3	30.0	12.8	22.0			
M12410-08-06	12	- 8	1/2”	11/16” - 16		6.7	29.0	11.2	22.0			
M12410-08-08	12	- 8	1/2”	13/16” - 16		9.3	30.5	12.8	22.0			
M12410-08-10	12	- 8	1/2”	1” - 14		12.5	35.0	15.5	27.0			
M12410-08-12	12	- 8	1/2”	1.3/16” - 12		15.0	37.5	17.0	32.0			
M12410-10-08	16	- 10	5/8”	13/16” - 16		9.3	30.5	12.8	22.0			
M12410-10-10	16	- 10	5/8”	1” - 14		12.5	34.5	15.5	27.0			
M12410-10-12	16	- 10	5/8”	1.3/16” - 12		15.0	37.5	17.0	32.0			
M12410-12-12	19	- 12	3/4”	1.3/16” - 12		15.0	39.0	17.0	32.0			
M12410-12-16	19	- 12	3/4”	1.7/16” - 12		19.8	40.5	17.5	38.0			
M12410-16-16	25	- 16	1”	1.7/16” - 12		19.8	42.0	17.5	38.0			
M12410-16-20	25	- 16	1”	1.11/16” - 12		26.0	44.0	17.5	46.0			
M12410-20-20	31	- 20	1.1/4”	1.11/16” - 12		26.0	46.5	17.5	46.0			
M12410-24-24	38	- 24	1.1/2”	2” - 12		32.0	48.5	17.5	55.0			

SAE STANDARD CONNECTIONS

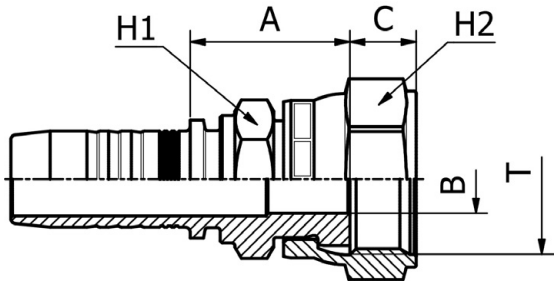


M22411

ORFS FEMALE
SAE J516 / ISO 12151-1 PULLBACK TYPE
(CRIMPED BACK-NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1	H2		
M22411-04-04	6	- 4	1/4”	9/16” - 18		4.0	27.5	8.0	13.0	19.0		
M22411-04-06	6	- 4	1/4”	11/16” - 16		7.0	30.0	9.5	16.0	22.0		
M22411-04-08	6	- 4	1/4”	13/16” - 16		9.3	35.5	11.0	19.0	24.0		
M22411-05-04	8	- 5	5/16”	9/16” - 18		4.0	28.5	8.0	16.0	19.0		
M22411-05-06	8	- 5	5/16”	11/16” - 16		7.0	30.5	9.5	16.0	22.0		
M22411-06-04	10	- 6	3/8”	9/16” - 18		4.0	29.0	8.0	16.0	19.0		
M22411-06-06	10	- 6	3/8”	11/16” - 16		7.0	31.0	9.5	16.0	22.0		
M22411-06-08	10	- 6	3/8”	13/16” - 16		9.3	36.5	11.0	19.0	24.0		
M22411-08-06	12	- 8	1/2”	11/16” - 16		7.0	32.0	9.5	19.0	22.0		
M22411-08-08	12	- 8	1/2”	13/16” - 16		9.3	37.0	11.0	19.0	24.0		
M22411-08-10	12	- 8	1/2”	1” - 14		11.5	39.0	13.5	24.0	30.0		
M22411-08-12	12	- 8	1/2”	1.3/16” - 12		13.9	44.0	14.5	28.0	36.0		
M22411-10-08	16	- 10	5/8”	13/16” - 16		9.3	37.0	11.0	24.0	24.0		
M22411-10-10	16	- 10	5/8”	1” - 14		11.5	39.0	13.5	24.0	30.0		
M22411-10-12	16	- 10	5/8”	1.3/16” - 12		13.9	44.0	14.5	28.0	36.0		
M22411-12-10	19	- 12	3/4”	1” - 14		11.5	41.5	13.5	28.0	30.0		
M22411-12-12	19	- 12	3/4”	1.3/16” - 12		13.9	45.5	14.5	28.0	36.0		
M22411-12-16	19	- 12	3/4”	1.7/16” - 12		19.8	48.5	15.0	36.0	41.0		
M22411-16-12	25	- 16	1”	1.3/16” - 12		13.9	48.0	13.5	36.0	36.0		
M22411-16-16	25	- 16	1”	1.7/16” - 12		19.8	49.5	15.0	36.0	41.0		
M22411-16-20	25	- 16	1”	1.11/16” - 12		26.0	52.0	13.6	41.0	50.0		
M22411-20-20	31	- 20	1.1/4”	1.11/16” - 12		26.0	52.0	14.8	41.0	50.0		
M22411-20-24	31	- 20	1.1/4”	2” - 12		32.0	56.5	14.2	50.0	60.0		
M22411-24-24	38	- 24	1.1/2”	2” - 12		32.0	56.5	14.2	50.0	60.0		

SAE STANDARD CONNECTIONS



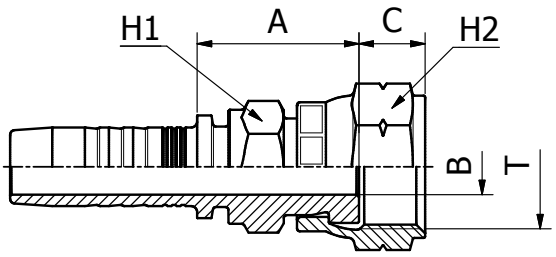
M27411

ORFS FEMALE
SAE J516 / ISO 12151-1 SHORT TYPE
(CRIMPED BACK-NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1	H2		
M27411-04-04	6	- 4	1/4”	9/16” - 18		4.0	20.5	8.0	13.0	19.0		
M27411-04-06	6	- 4	1/4”	11/16” - 16		7.0	22.0	9.5	16.0	22.0		
M27411-05-06	8	- 5	5/16”	11/16” - 16		7.0	25.5	9.5	16.0	22.0		
M27411-06-06	10	- 6	3/8”	11/16” - 16		7.0	26.0	9.5	16.0	22.0		
M27411-06-08	10	- 6	3/8”	13/16” - 16		9.3	26.5	11.0	19.0	24.0		
M27411-08-08	12	- 8	1/2”	13/16” - 16		9.3	26.5	11.0	19.0	24.0		
M27411-08-10	12	- 8	1/2”	1” - 14		11.5	27.5	12.5	24.0	30.0		
M27411-08-12	12	- 8	1/2”	1.3/16” - 12		13.9	31.0	13.5	28.0	36.0		
M27411-10-10	16	- 10	5/8”	1” - 14		11.5	28.0	12.5	24.0	30.0		
M27411-10-12	16	- 10	5/8”	1.3/16” - 12		13.9	31.0	13.5	28.0	36.0		
M27411-12-12	19	- 12	3/4”	1.3/16” - 12		13.9	32.5	13.5	28.0	36.0		
M27411-16-16	25	- 16	1”	1.7/16” - 12		19.8	36.5	13.5	36.0	41.0		

SAE STANDARD CONNECTIONS

M27411KR

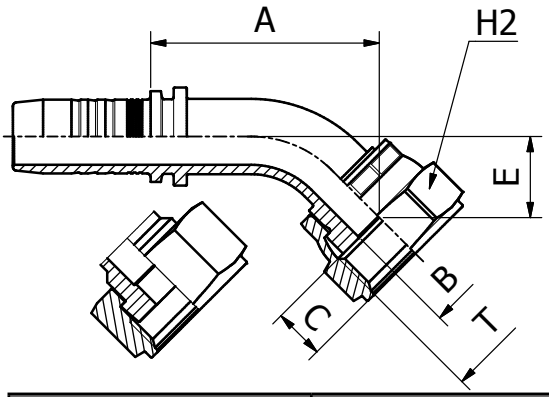


ORFS FEMALE
SAE J516 / ISO 12151-1 SHORT TYPE
(CRIMPED BACK-NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1	H2		
M27411-04-04KR	6	- 4	1/4”	9/16” - 18		4.0	20.5	8.0	14.0	17.0		
M27411-06-06KR	10	- 6	3/8”	11/16” - 16		7.0	23.0	9.5	17.0	22.0		
M27411-08-08KR	12	- 8	1/2”	13/16” - 16		9.3	27.0	11.0	19.0	24.0		

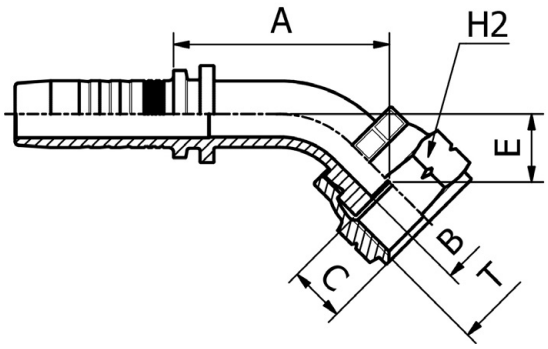
SAE STANDARD CONNECTIONS

M22441/M22443



45° ORFS FEMALE SWEPT ELBOW
SAE J516 / ISO 12151-1

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M22441-08-06	12	- 8	1/2”	11/16” - 16		7.0	32.5	9.5	11.0	22.0		
M22441-12-10	19	- 12	3/4”	1” - 14		11.5	51.0	12.5	16.5	30.0		
M22441-16-12	25	- 16	1”	1.3/16” - 12		13.9	66.0	13.5	21.5	36.0		
M22443-04-04	6	- 4	1/4”	9/16” - 18		4.0	31.0	8.2	10.5	17.0		
M22443-04-06	6	- 4	1/4”	11/16” - 16		7.0	31.0	9.5	10.5	22.0		
M22443-05-06	8	- 5	5/16”	11/16” - 16		7.0	34.0	9.5	10.5	22.0		
M22443-06-06	10	- 6	3/8”	11/16” - 16		6.0	32.5	9.5	11.0	22.0		
M22443-06-08	10	- 6	3/8”	13/16” - 16		9.3	34.0	11.0	12.5	24.0		
M22443-08-08	12	- 8	1/2”	13/16” - 16		9.0	42.0	11.0	13.0	24.0		
M22443-08-10	12	- 8	1/2”	1” - 14		11.5	42.0	13.5	13.5	30.0		
M22443-08-12	12	- 8	1/2”	1.3/16” - 12		13.9	46.5	14.5	18.5	36.0		
M22443-10-10	16	- 10	5/8”	1” - 14		11.5	49.0	13.5	16.0	30.0		
M22443-10-12	16	- 10	5/8”	1.3/16” - 12		13.9	51.5	14.5	18.5	36.0		
M22443-12-12	19	- 12	3/4”	1.3/16” - 12		13.9	60.5	14.5	21.5	36.0		
M22443-12-16	19	- 12	3/4”	1.7/16” - 12		19.8	60.0	14.8	21.0	41.0		
M22443-16-16	25	- 16	1”	1.7/16” - 12		19.8	72.0	14.8	23.5	41.0		
M22443-16-20	25	- 16	1”	1.11/16” - 12		26.0	74.0	14.8	25.0	50.0		
M22443-20-20	31	- 20	1.1/4”	1.11/16” - 12		26.0	82.0	14.8	27.0	50.0		
M22443-24-24	38	- 24	1.1/2”	2” - 12		32.0	98.0	14.8	31.5	60.0		

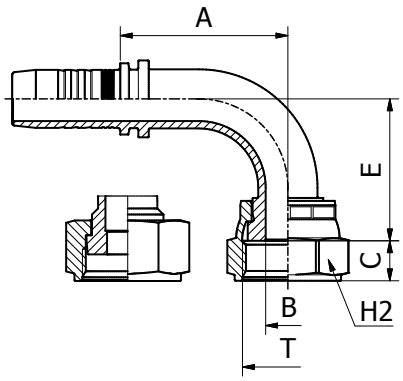


SAE STANDARD CONNECTIONS

M22441KR

45° ORFS FEMALE SWEPT ELBOW
SAE J516 / ISO 12151-1

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M22441-04-04KR	6	- 4	1/4"	9/16" - 18		4.2	30.0	8.0	10.5	17.0		
M22441-06-06KR	10	- 6	3/8"	11/16" - 16		6.0	31.5	9.5	11.0	22.0		
M22441-08-08KR	12	- 8	1/2"	13/16" - 16		9.0	42.5	11.0	13.5	24.0		

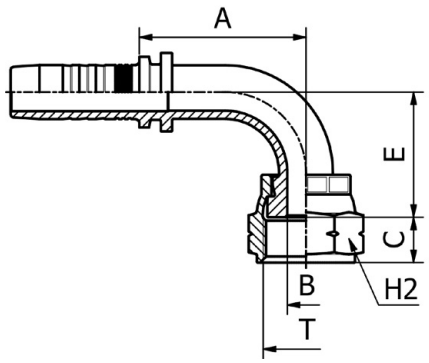


SAE STANDARD CONNECTIONS

M22491/M22493

90° ORFS FEMALE SWEPT ELBOW
SAE J516 / ISO 12151-1

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M22491-10-10032	16	- 10	5/8"	1" - 14		11.0	42.0	7.5	32.0	30.0		
M22491-06-04	10	- 6	3/8"	9/16" - 18		4.0	28.0	8.0	23.0	19.0		
M22491-08-06	12	- 8	1/2"	11/16" - 16		7.0	30.0	9.5	24.5	22.0		
M22491-10-08	16	- 10	5/8"	13/16" - 16		9.3	41.0	11.0	34.0	24.0		
M22491-12-10	19	- 12	3/4"	1" - 14		11.5	49.0	12.5	38.5	30.0		
M22491-16-12	25	- 16	1"	1.3/16" - 12		13.9	57.5	13.5	48.0	36.0		
M22493-04-04	6	- 4	1/4"	9/16" - 18		4.0	27.5	8.2	22.0	17.0		
M22493-04-06	6	- 4	1/4"	11/16" - 16		7.0	27.5	9.5	22.0	22.0		
M22493-05-06	8	- 5	5/16"	11/16" - 16		7.0	32.0	9.5	23.0	22.0		
M22493-06-06	10	- 6	3/8"	11/16" - 16		6.0	30.0	9.5	24.0	22.0		
M22493-06-08	10	- 6	3/8"	13/16" - 16		9.3	30.0	11.0	26.5	24.0		
M22493-08-08	12	- 8	1/2"	13/16" - 16		9.0	40.5	11.0	30.0	24.0		
M22493-08-10	12	- 8	1/2"	1" - 14		11.5	40.0	13.5	30.5	30.0		
M22493-08-12	12	- 8	1/2"	1.3/16" - 12		13.9	39.5	14.5	37.5	36.0		
M22493-10-10	16	- 10	5/8"	1" - 14		11.5	48.0	13.5	37.5	30.0		
M22493-10-12	16	- 10	5/8"	1.3/16" - 12		13.9	48.0	14.5	41.0	36.0		
M22493-12-12	19	- 12	3/4"	1.3/16" - 12		13.9	56.5	14.5	48.0	36.0		
M22493-12-16	19	- 12	3/4"	1.7/16" - 12		19.8	56.5	14.8	47.5	41.0		
M22493-16-16	25	- 16	1"	1.7/16" - 12		19.8	71.5	14.8	56.0	41.0		
M22493-16-20	25	- 16	1"	1.11/16" - 12		26.0	71.5	14.8	58.5	50.0		
M22493-20-20	31	- 20	1.1/4"	1.11/16" - 12		26.0	83.0	14.8	66.0	50.0		
M22493-24-24	38	- 24	1.1/2"	2" - 12		32.0	102.0	14.8	79.5	60.0		

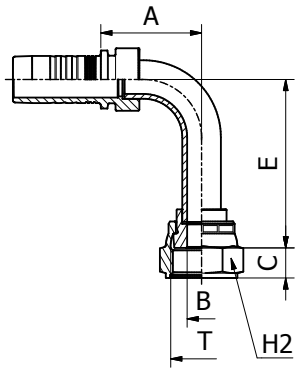


SAE STANDARD CONNECTIONS

M22491KR

90° ORFS FEMALE SWEPT ELBOW
SAE J516 / ISO 12151-1

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M22491-04-04KR	6	- 4	1/4”	9/16” - 18		4.2	26.5	8.0	22.0	17.0		
M22491-04-06KR	6	- 4	1/4”	11/16” - 16		6.0	26.3	9.5	22.0	22.0		
M22491-06-06KR	10	- 6	3/8”	11/16” - 16		6.0	29.0	9.5	24.0	22.0		
M22491-06-08KR	10	- 6	3/8”	13/16” - 16		9.0	35.5	11.0	28.5	24.0		
M22491-08-08KR	12	- 8	1/2”	13/16” - 16		9.0	40.5	11.0	30.5	24.0		

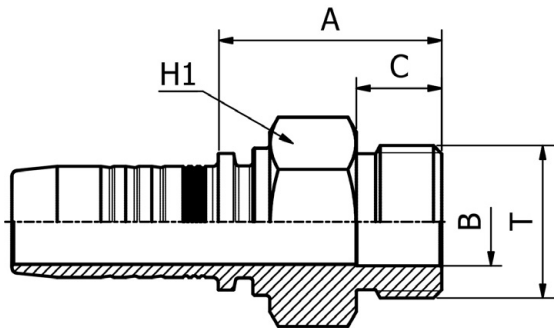


SAE STANDARD CONNECTIONS

M24491 LONG DROP

90° ORFS FEMALE LONG DROP ELBOW
SAE J516 / ISO 12151-1
(CRIMPED-BACK NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M24491-04-04	6	- 4	1/4”	9/16” - 18		4.4	25.0	8.0	46.0	17.0		
M24491-04-06	6	- 4	1/4”	11/16” - 16		7.0	26.5	9.5	53.5	22.0		
M24491-05-06	8	- 5	5/16”	11/16” - 16		6.7	31.5	9.5	54.0	22.0		
M24491-06-06	10	- 6	3/8”	11/16” - 16		6.7	32.0	9.5	54.0	22.0		
M24491-06-08	10	- 6	3/8”	13/16” - 16		6.7	32.0	11.0	54.0	24.0		
M24491-08-08	12	- 8	1/2”	13/16” - 16		9.6	37.0	11.0	64.0	24.0		
M24491-08-10	12	- 8	1/2”	1” - 14		9.6	37.0	12.5	64.5	30.0		
M24491-10-10	16	- 10	5/8”	1” - 14		12.0	41.0	13.0	70.0	30.0		
M24491-10-12	16	- 10	5/8”	1.3/16” - 12		12.7	41.0	13.5	73.0	36.0		
M24491-12-12	19	- 12	3/4”	1.3/16” - 12		15.0	58.5	13.5	96.0	36.0		
M24491-16-16	25	- 16	1”	1.7/16” - 12		19.8	71.5	13.5	114.0	41.0		
M24491-20-20	31	- 20	1.1/4”	1.11/16” - 12		26.0	82.5	13.6	129.0	50.0		

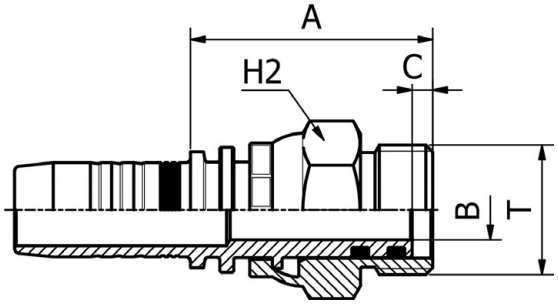


SAE STANDARD CONNECTIONS

M13010

SAE MALE O-RING BOSS TYPE
SAE J516 / ISO 11926

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1			
M13010-04-04	6	- 4	1/4”	7/16” - 20		4.4	24.0	9.1	14.0			
M13010-04-06	6	- 4	1/4”	9/16” - 18		7.5	24.5	9.9	17.0			
M13010-06-06	10	- 6	3/8”	9/16” - 18		7.5	25.5	9.9	17.0			
M13010-06-08	10	- 6	3/8”	3/4” - 16		9.9	28.5	11.1	22.0			
M13010-06-10	10	- 6	3/8”	7/8” - 14		12.3	31.5	12.7	25.0			
M13010-08-08	12	- 8	1/2”	3/4” - 16		9.9	29.0	11.1	22.0			
M13010-08-10	12	- 8	1/2”	7/8” - 14		12.3	32.0	12.7	25.0			
M13010-08-12	12	- 8	1/2”	1.1/16” - 12		15.5	38.5	15.1	32.0			
M13010-10-10	16	- 10	5/8”	7/8” - 14		12.5	32.0	12.7	25.0			
M13010-10-12	16	- 10	5/8”	1.1/16” - 12		15.5	37.5	15.1	32.0			
M13010-12-12	19	- 12	3/4”	1.1/16” - 12		15.5	39.5	15.1	32.0			
M13010-12-16	19	- 12	3/4”	1.5/16” - 12		21.5	40.0	15.1	38.0			
M13010-16-16	25	- 16	1”	1.5/16” - 12		21.5	41.0	15.1	38.0			
M13010-20-20	31	- 20	1.1/4”	1.5/8” - 12		27.5	43.5	15.1	46.0			

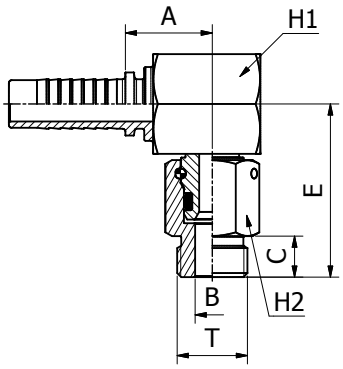


SAE STANDARD CONNECTIONS

M14310

SAE SWIVEL MALE O-RING BOSS TYPE
SAE J516 / ISO 11926

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H2			
M14310-04-04	6	- 4	1/4”	7/16” - 20		4.0	43.0	9.1	17.0			
M14310-04-06	6	- 4	1/4”	9/16” - 18		7.0	44.0	9.9	22.0			
M14310-06-06	10	- 6	3/8”	9/16” - 18		7.0	48.0	9.9	22.0			
M14310-06-08	10	- 6	3/8”	3/4” - 16		9.3	47.0	11.1	22.0			
M14310-08-08	12	- 8	1/2”	3/4” - 16		9.3	53.0	11.1	27.0			
M14310-08-10	12	- 8	1/2”	7/8” - 14		9.3	41.5	13.0	27.0			
M14310-08-12	12	- 8	1/2”	1.1/16” - 12		12.5	49.5	15.0	32.0			
M14310-10-10	16	- 10	5/8”	7/8” - 14		9.3	41.5	13.0	27.0			
M14310-12-12	19	- 12	3/4”	1.1/16” - 12		12.5	50.5	15.0	32.0			

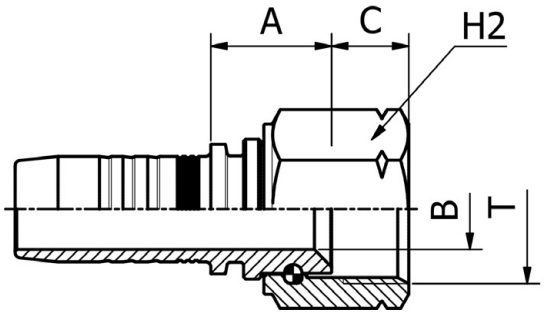


SAE STANDARD CONNECTIONS

M14390

90° SAE SWIVEL MALE O-RING BOSS TYPE
SAE J516 / ISO 11926

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H1	H2	
M14390-06-06	10	- 6	3/8”	9/16” - 18		5.7	20.0	9.9	40.0	22.0	17.0	
M14390-06-08	10	- 6	3/8”	3/4” - 16		9.3	20.0	11.1	44.5	22.0	22.0	
M14390-08-08	12	- 8	1/2”	3/4” - 16		9.3	23.5	11.1	47.0	27.0	22.0	
M14390-08-10	12	- 8	1/2”	7/8” - 14		9.8	23.5	13.0	47.0	27.0	27.0	
M14390-10-10	16	- 10	5/8”	7/8” - 14		9.8	23.5	13.0	47.0	27.0	27.0	
M14390-12-12	19	- 12	3/4”	1.1/16” - 12		13.0	28.0	15.0	58.5	34.0	32.0	

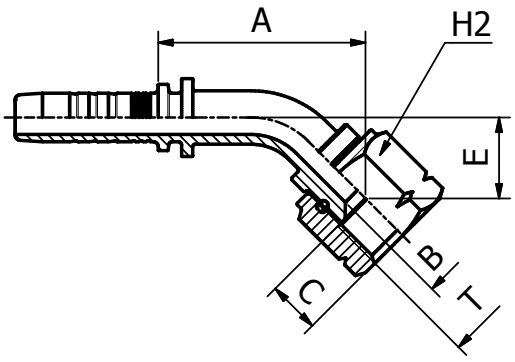


SAE STANDARD CONNECTIONS

M22612

SAE FEMALE 45° CONE SEAT
SAE J516/J512
(THRUST-WIRE NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H2			
M22612-04-04	6	- 4	1/4”	7/16” - 20		4.0	15.5	8.7	17.0			
M22612-05-06	8	- 5	5/16”	5/8” - 18		7.0	16.0	10.8	22.0			
M22612-06-06	10	- 6	3/8”	5/8” - 18		7.0	16.5	10.8	22.0			
M22612-12-12	19	- 12	3/4”	1.1/16” - 14		15.0	22.5	14.4	32.0			

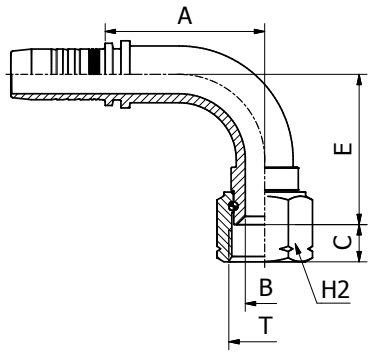


SAE STANDARD CONNECTIONS

M22642

45° SAE FEMALE SWEPT ELBOW 45° CONE SEAT SAE J516/J512 (THRUST-WIRE NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M22642-06-06	10	- 6	3/8"	5/8" - 18		7.0	42.5	10.8	16.5	22.0		

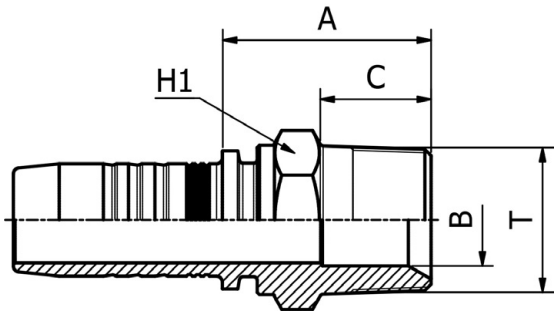


SAE STANDARD CONNECTIONS

M22692

90° SAE FEMALE SWEPT ELBOW 45° CONE SEAT SAE J516/J512 (THRUST-WIRE NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M22692-04-04	6	- 4	1/4"	7/16" - 20		4.0	28.5	8.7	27.0	17.0		
M22692-06-06	10	- 6	3/8"	5/8" - 18		7.0	35.5	10.8	33.0	22.0		
M22692-12-12	19	- 12	3/4"	1.1/16" - 14		15.0	62.0	14.4	58.0	32.0		

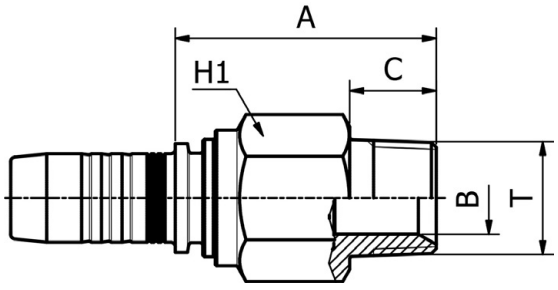


SAE STANDARD CONNECTIONS

M12810

NPTF MALE 60° CONE SEAT
SAE J516/J514

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1			
M12810-03-02	5	- 3	3/16”	1/8” - 27		3.0	23.5	10.0	12.0			
M12810-03-04	5	- 3	3/16”	1/4” - 18		5.5	29.0	14.5	14.0			
M12810-04-02	6	- 4	1/4”	1/8” - 27		4.0	24.0	10.0	12.0			
M12810-04-04	6	- 4	1/4”	1/4” - 18		5.5	29.0	14.5	14.0			
M12810-04-06	6	- 4	1/4”	3/8” - 18		9.3	27.5	14.5	19.0			
M12810-04-08	6	- 4	1/4”	1/2” - 14		9.3	33.5	19.2	24.0			
M12810-05-04	8	- 5	5/16”	1/4” - 18		5.5	29.5	14.5	14.0			
M12810-05-06	8	- 5	5/16”	3/8” - 18		9.3	32.0	14.5	19.0			
M12810-06-04	10	- 6	3/8”	1/4” - 18		5.5	30.0	14.5	14.0			
M12810-06-06	10	- 6	3/8”	3/8” - 18		9.3	28.5	14.5	19.0			
M12810-06-08	10	- 6	3/8”	1/2” - 14		12.5	34.5	19.2	24.0			
M12810-08-06	12	- 8	1/2”	3/8” - 18		9.3	29.0	14.5	19.0			
M12810-08-08	12	- 8	1/2”	1/2” - 14		12.5	35.0	19.2	24.0			
M12810-08-12	12	- 8	1/2”	3/4” - 14		15.5	35.5	19.2	27.0			
M12810-10-08	16	- 10	5/8”	1/2” - 14		12.5	38.5	19.2	24.0			
M12810-10-12	16	- 10	5/8”	3/4” - 14		16.0	40.0	19.2	27.0			
M12810-12-08	19	- 12	3/4”	1/2” - 14		12.5	36.5	19.2	27.0			
M12810-12-12	19	- 12	3/4”	3/4” - 14		16.0	36.5	19.2	27.0			
M12810-12-16	19	- 12	3/4”	1” - 11.5		19.8	46.0	24.2	36.0			
M12810-16-12	25	- 16	1”	3/4” - 14		15.5	39.0	19.2	32.0			
M12810-16-16	25	- 16	1”	1” - 11.5		19.8	44.0	24.2	36.0			
M12810-16-20	25	- 16	1”	1.1/4” - 11.5		26.0	56.5	25.0	46.0			
M12810-20-20	31	- 20	1.1/4”	1.1/4” - 11.5		26.0	56.5	25.0	46.0			
M12810-24-24	38	- 24	1.1/2”	1.1/2” - 11.5		32.0	57.5	26.0	50.0			
M12810-32-32	51	- 32	2”	2” - 11.5		45.0	64.5	26.5	65.0			
M12810-40-40	63	- 40	2.1/2”	2.1/2” - 8		55.4	78.0	39.9	80.0			
M12810-48-48	76	- 48	3”	3” - 8		68.9	86.0	41.5	100.0			



SAE STANDARD CONNECTIONS

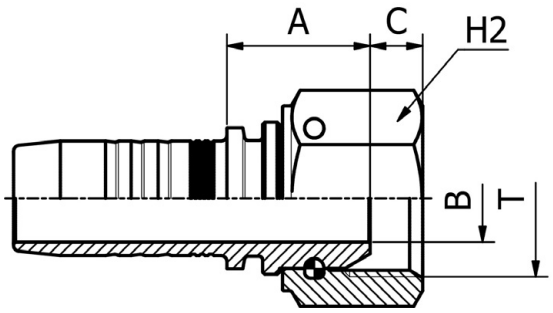
M14110R

NPTF SWIVEL MALE 60° CONE SEAT
SAE J516/J514

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1			
M14110-04-02R	6	- 4	1/4”	1/8” - 27		3.0	42.0	10.0	17.0			
M14110-04-04R	6	- 4	1/4”	1/4” - 18		4.0	46.5	14.5	17.0			
M14110-04-06R	6	- 4	1/4”	3/8” - 18		7.0	46.5	14.5	19.0			
M14110-06-04R	10	- 6	3/8”	1/4” - 18		4.0	50.5	14.5	22.0			
M14110-06-06R	10	- 6	3/8”	3/8” - 18		7.0	50.5	14.5	22.0			
M14110-06-08R	10	- 6	3/8”	1/2” - 14		9.3	55.0	19.2	24.0			
M14110-08-06R	12	- 8	1/2”	3/8” - 18		7.0	54.5	14.5	27.0			
M14110-08-08R	12	- 8	1/2”	1/2” - 14		9.3	59.0	19.2	27.0			
M14110-12-12R	19	- 12	3/4”	3/4” - 14		16.0	58.0	19.2	32.0			
M14110-16-16R	25	- 16	1”	1” - 11.5		19.8	66.0	24.2	38.0			

SAE STANDARD CONNECTIONS

M22812

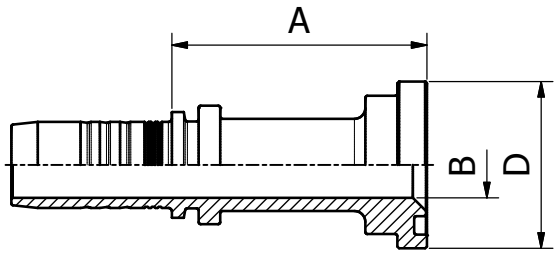


NPSM FEMALE 60° CONE
SAE J516/J514
(THRUST-WIRE NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H2			
M22812-04-04	6	- 4	1/4”	1/4” - 18		4.0	17.5	4.2	19.0			
M22812-06-04	10	- 6	3/8”	1/4” - 18		4.1	18.0	4.2	19.0			
M22812-06-06	10	- 6	3/8”	3/8” - 18		7.0	21.0	6.0	22.0			
M22812-08-08	12	- 8	1/2”	1/2” - 14		9.3	23.0	6.5	27.0			
M22812-12-12	19	- 12	3/4”	3/4” - 14		15.0	24.5	9.0	32.0			
M22812-16-16	25	- 16	1”	1” - 11.5		19.8	27.5	10.5	38.0			

SAE STANDARD CONNECTIONS

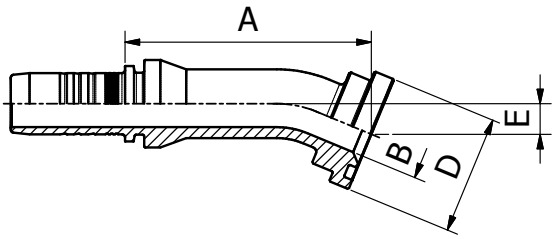
M23311



ISO/SAE CODE 61 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			FLANGE		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D				
M23311-08-08	12	-8	1/2"	1/2"		9.3	51.0	30.3				
M23311-08-12	12	-8	1/2"	3/4"		15.1	58.0	38.0				
M23311-10-08	16	-10	5/8"	1/2"		9.3	51.0	30.3				
M23311-10-12	16	-10	5/8"	3/4"		15.0	65.5	38.0				
M23311-10-24	16	-10	5/8"	1.1/2"		32.0	69.5	60.5				
M23311-12-12	19	-12	3/4"	3/4"		15.0	58.0	38.0				
M23311-12-16	19	-12	3/4"	1"		20.0	58.0	44.6				
M23311-12-20	19	-12	3/4"	1.1/4"		26.0	69.5	51.0				
M23311-16-12	25	-16	1"	3/4"		15.0	60.5	38.0				
M23311-16-16	25	-16	1"	1"		19.8	64.5	44.6				
M23311-16-20	25	-16	1"	1.1/4"		26.0	70.5	51.0				
M23311-20-12	31	-20	1.1/4"	3/4"		15.0	61.0	38.0				
M23311-20-16	31	-20	1.1/4"	1"		19.8	64.5	44.6				
M23311-20-20	31	-20	1.1/4"	1.1/4"		26.0	70.5	51.0				
M23311-20-24	31	-20	1.1/4"	1.1/2"		32.0	72.5	60.5				
M23311-20-32	31	-20	1.1/4"	2"		42.0	75.5	71.6				
M23311-24-24	38	-24	1.1/2"	1.1/2"		32.0	75.5	60.5				
M23311-24-32	38	-24	1.1/2"	2"		42.0	75.5	71.6				
M23311-32-32	51	-32	2"	2"		42.0	79.0	71.6				
M23311-32-40	51	-32	2"	2.1/2"		56.0	81.0	84.3				
M23311-38-40	60	-38	2.3/8"	2.1/2"		50.5	84.0	84.3				
M23311-40-32	63	-40	2.1/2"	2"		42.0	78.5	71.6				
M23311-40-40	63	-40	2.1/2"	2.1/2"		55.4	84.0	84.3				
M23311-40-48	63	-40	2.1/2"	3"		68.9	79.0	101.6				
M23311-40-56	63	-40	2.1/2"	3.1/2"		79.0	90.5	114.3				
M23311-40-64	63	-40	2.1/2"	4"		90.0	96.5	127.0				
M23311-48-48	76	-48	3"	3"		68.9	85.5	101.6				
M23311-56-56	89	-56	3.1/2"	3.1/2"		79.0	94.5	114.3				
M23311-64-64	102	-64	4"	4"		90.0	100.5	127.0				

SAE STANDARD CONNECTIONS



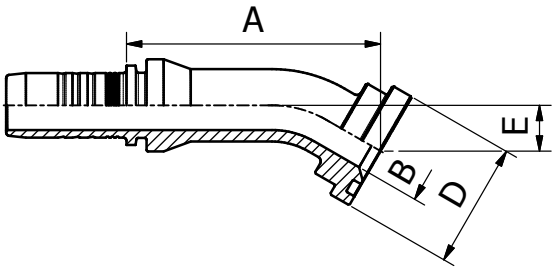
M23321

22.5° ISO/SAE CODE 61 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			FLANGE		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M23321-08-08	12	-8	1/2"	1/2"		9.3	64.0	30.3	8.0			
M23321-12-12	19	-12	3/4"	3/4"		15.0	74.5	38.0	10.0			
M23321-12-16	19	-12	3/4"	1"		20.0	74.5	44.6	10.0			
M23321-16-16	25	-16	1"	1"		19.8	89.0	44.6	11.5			
M23321-16-20	25	-16	1"	1.1/4"		26.0	88.5	51.0	11.5			
M23321-16-24	25	-16	1"	1.1/2"		32.0	88.5	60.5	12.0			
M23321-20-20	31	-20	1.1/4"	1.1/4"		26.0	100.0	51.0	12.0			
M23321-20-20018	31	-20	1.1/4"	1.1/4"		26.0	99.0	51.0	18.0			
M23321-20-24	31	-20	1.1/4"	1.1/2"		32.0	102.0	60.5	13.0			
M23321-24-24	38	-24	1.1/2"	1.1/2"		32.0	116.5	60.5	14.0			
M23321-24-24023	38	-24	1.1/2"	1.1/2"		32.0	115.0	60.5	23.0			
M23321-24-32	38	-24	1.1/2"	2"		42.0	116.5	71.6	14.0			
M23321-32-32	51	-32	2"	2"		42.0	134.5	71.6	15.0			
M23321-40-40	63	-40	2.1/2"	2.1/2"		52.0	80.0	84.3	16.5			
M23321-40-40A150	63	-40	2.1/2"	2.1/2"		52.0	151.0	84.3	17.5			
M23321-40-48	63	-40	2.1/2"	3"		61.0	107.5	101.6	20.5			
M23321-48-48	76	-48	3"	3"		61.0	111.0	101.6	20.5			

All items are made from solid with the exception of M23321-40-40, M23321-40-48, M23321-48-48

SAE STANDARD CONNECTIONS



M23331

30° ISO/SAE CODE 61 FLANGE
SAE J516 / ISO 12151-3

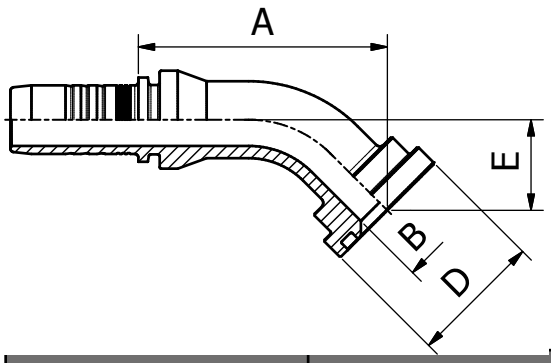
PART. REF.	HOSE BORE			FLANGE		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M23331-08-08	12	-8	1/2"	1/2"		9.3	62.5	30.3	11.0			
M23331-08-12	12	-8	1/2"	3/4"		15.0	63.5	38.0	11.5			
M23331-12-12	19	-12	3/4"	3/4"		15.0	73.0	38.0	14.0			
M23331-12-16	19	-12	3/4"	1"		20.0	73.0	44.6	14.0			
M23331-16-16	25	-16	1"	1"		19.8	87.0	44.6	16.5			
M23331-16-20	25	-16	1"	1.1/4"		26.0	87.0	51.0	16.5			
M23331-20-20	31	-20	1.1/4"	1.1/4"		26.0	98.0	51.0	17.5			
M23331-20-24	31	-20	1.1/4"	1.1/2"		32.0	100.0	60.5	18.5			
M23331-20-24044	31	-20	1.1/4"	1.1/2"		32.0	131.5	60.5	44.0			
M23331-24-24	38	-24	1.1/2"	1.1/2"		32.0	114.5	60.5	20.0			
M23331-24-32	38	-24	1.1/2"	2"		42.0	114.5	71.6	20.0			
M23331-32-32	51	-32	2"	2"		42.0	132.0	71.6	22.0			
M23331-40-40	63	-40	2.1/2"	2.1/2"		52.0	87.5	84.3	24.0			
M23331-40-40A150	63	-40	2.1/2"	2.1/2"		52.0	149.0	84.3	26.0			
M23331-40-48	63	-40	2.1/2"	3"		52.0	85.0	101.6	24.5			
M23331-48-48	76	-48	3"	3"		61.0	117.5	101.6	31.5			

All items are made from solid with the exception of M23331-40-40, M23331-40-48, M23331-48-48

SAE STANDARD CONNECTIONS

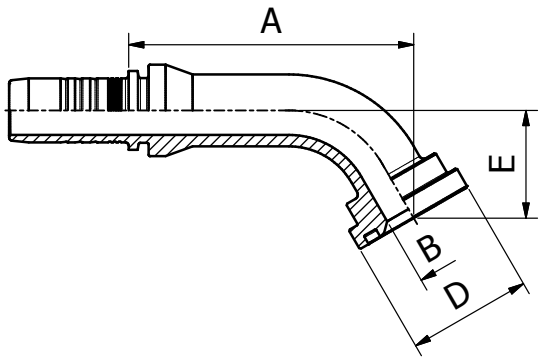
M23341

45° ISO/SAE CODE 61 FLANGE
SAE J516 / ISO 12151-3



PART. REF.	HOSE BORE			FLANGE		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M23341-06-08	10	-6	3/8"	1/2"		9.3	52.5	30.0	17.5			
M23341-08-08	12	-8	1/2"	1/2"		9.3	58.5	30.3	18.5			
M23341-08-12	12	-8	1/2"	3/4"		15.0	59.5	38.0	19.0			
M23341-08-16	12	-8	1/2"	1"		19.8	59.5	44.6	19.0			
M23341-10-12	16	-10	5/8"	3/4"		15.0	61.0	38.0	22.0			
M23341-12-12	19	-12	3/4"	3/4"		15.0	71.0	38.0	26.0			
M23341-12-16	19	-12	3/4"	1"		20.0	68.5	44.6	23.0			
M23341-16-12	25	-16	1"	3/4"		15.0	74.5	38.0	23.0			
M23341-16-16	25	-16	1"	1"		19.8	81.5	44.6	27.5			
M23341-16-16032	25	-16	1"	1"		19.8	86.0	44.5	32.0			
M23341-16-20	25	-16	1"	1.1/4"		26.0	81.5	51.0	27.5			
M23341-20-16	31	-20	1.1/4"	1"		19.8	84.5	44.6	29.5			
M23341-20-20	31	-20	1.1/4"	1.1/4"		26.0	92.0	51.0	29.5			
M23341-20-20038	31	-20	1.1/4"	1.1/4"		26.0	100.5	50.9	38.0			
M23341-20-24	31	-20	1.1/4"	1.1/2"		32.0	93.5	60.5	31.0			
M23341-24-24	38	-24	1.1/2"	1.1/2"		32.0	107.5	60.5	34.5			
M23341-24-24044	38	-24	1.1/2"	1.1/2"		32.0	117.0	60.5	44.0			
M23341-24-32	38	-24	1.1/2"	2"		42.0	107.5	71.6	34.5			
M23341-32-20	51	-32	2"	1.1/4"		26.0	128.5	51.0	32.0			
M23341-32-32	51	-32	2"	2"		42.0	124.0	71.6	39.0			
M23341-32-32056	51	-32	2"	2"		42.0	141.0	71.5	56.0			
M23341-32-40	51	-32	2"	2.1/2"		56.0	136.5	84.3	49.5			
M23341-40-32	63	-40	2.1/2"	2"		42.0	152.0	71.6	48.5			
M23341-40-40	63	-40	2.1/2"	2.1/2"		52.0	95.0	84.3	48.5			
M23341-40-40A140	63	-40	2.1/2"	2.1/2"		52.0	141.0	84.3	46.0			
M23341-40-48	63	-40	2.1/2"	3"		61.0	117.5	101.6	53.5			
M23341-48-48	76	-48	3"	3"		58.0	125.5	101.6	53.5			
M23341-56-56	89	-56	3.1/2"	3.1/2"		79.0	139.0	114.3	68.0			
M23341-56-64	89	-56	3.1/2"	4"		79.0	124.5	127.0	53.5			
M23341-64-64	102	-64	4"	4"		90.0	132.0	127.0	56.5			

All items are made from solid with the exception of M23341-40-40, M23341-40-48, M23341-48-48, M23341-56-56, M23341-56-64, M23341-64-64.



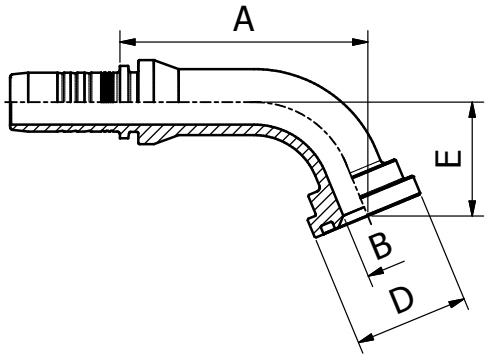
SAE STANDARD CONNECTIONS

M23361

60° ISO/SAE CODE 61 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE		FLANGE		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M23361-08-08	12	-8	1/2"	1/2"		9.3	71.5	30.3	26.0			
M23361-08-12	12	-8	1/2"	3/4"		15.0	72.0	38.0	26.5			
M23361-12-12	19	-12	3/4"	3/4"		15.0	87.0	38.0	33.0			
M23361-12-16	19	-12	3/4"	1"		20.0	87.0	44.6	33.0			
M23361-16-16	25	-16	1"	1"		19.8	104.0	44.6	39.0			
M23361-16-20	25	-16	1"	1.1/4"		26.0	104.0	51.0	39.0			
M23361-20-20	31	-20	1.1/4"	1.1/4"		26.0	120.0	51.0	43.0			
M23361-20-20065	31	-20	1.1/4"	1.1/4"		26.0	107.5	51.0	65.0			
M23361-20-24	31	-20	1.1/4"	1.1/2"		32.0	121.0	60.5	44.5			
M23361-24-20	38	-24	1.1/2"	1.1/4"		26.0	136.5	51.0	46.5			
M23361-24-24	38	-24	1.1/2"	1.1/2"		32.0	143.5	60.5	50.5			
M23361-24-32	38	-24	1.1/2"	2"		42.0	143.5	71.6	51.0			
M23361-32-32	51	-32	2"	2"		42.0	129.0	71.6	58.0			
M23361-40-40	63	-40	2.1/2"	2.1/2"		52.0	94.5	84.3	67.0			
M23361-40-40A200	63	-40	2.1/2"	2.1/2"		52.0	196.6	84.3	68.5			
M23361-40-48	63	-40	2.1/2"	3"		52.0	87.5	101.6	54.5			
M23361-48-48	76	-48	3"	3"		61.0	128.5	101.6	79.0			

All items are made from solid with the exception of M23361-40-40, M23361-40-48, M23361-48-48.



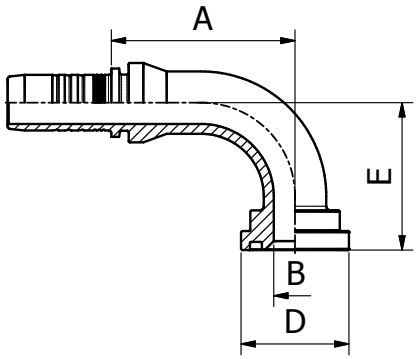
SAE STANDARD CONNECTIONS

M23371

67.5° ISO/SAE CODE 61 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE		FLANGE		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M23371-08-08	12	-8	1/2"	1/2"		9.3	68.0	30.3	29.5			
M23371-08-12	12	-8	1/2"	3/4"		15.0	68.5	38.0	30.5			
M23371-08-16	12	-8	1/2"	1"		19.8	68.5	44.6	30.5			
M23371-12-12	19	-12	3/4"	3/4"		15.0	82.0	38.0	38.0			
M23371-12-16	19	-12	3/4"	1"		20.0	82.0	44.6	38.0			
M23371-12-20	19	-12	3/4"	1.1/4"		26.0	82.0	51.0	38.0			
M23371-16-16	25	-16	1"	1"		19.8	98.5	44.6	45.0			
M23371-16-20	25	-16	1"	1.1/4"		26.0	98.5	51.0	45.0			
M23371-20-20	31	-20	1.1/4"	1.1/4"		26.0	114.0	51.0	50.0			
M23371-20-24	31	-20	1.1/4"	1.1/2"		32.0	115.0	60.5	52.0			
M23371-24-24	38	-24	1.1/2"	1.1/2"		32.0	136.5	60.5	59.0			
M23371-24-32	38	-24	1.1/2"	2"		42.0	136.5	71.6	59.0			
M23371-32-32	51	-32	2"	2"		42.0	162.0	71.6	68.5			
M23371-32-32085	51	-32	2"	2"		42.0	150.5	71.6	85.0			
M23371-32-40	51	-32	2"	2.1/2"		56.0	171.5	84.3	83.5			
M23371-40-40	63	-40	2.1/2"	2.1/2"		52.0	95.0	84.3	78.0			
M23371-40-40A190	63	-40	2.1/2"	2.1/2"		52.0	188.0	84.3	81.0			
M23371-40-48	63	-40	2.1/2"	3"		52.0	90.5	101.6	64.5			

All items are made from solid with the exception of M23371-40-40, M23371-40-48.



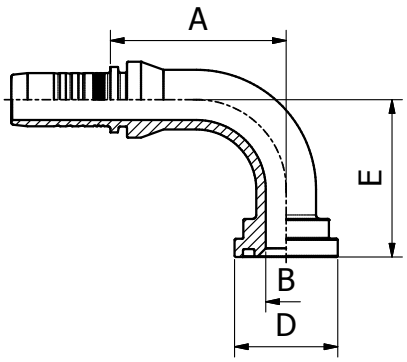
SAE STANDARD CONNECTIONS

M23391

90° ISO/SAE CODE 61 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			FLANGE		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M23391-06-08	10	-6	3/8"	1/2"		9.3	44.5	30.0	34.5			
M23391-08-08	12	-8	1/2"	1/2"		9.3	54.5	30.3	40.0			
M23391-08-12	12	-8	1/2"	3/4"		15.0	54.5	38.0	41.0			
M23391-08-16	12	-8	1/2"	1"		19.8	54.5	44.6	66.0			
M23391-10-08	16	-10	5/8"	1/2"		9.3	56.0	30.3	46.5			
M23391-10-12	16	-10	5/8"	3/4"		15.0	56.0	38.0	47.5			
M23391-12-12	19	-12	3/4"	3/4"		15.0	64.5	38.0	52.0			
M23391-12-16	19	-12	3/4"	1"		20.0	64.5	44.6	52.0			
M23391-12-20	19	-12	3/4"	1.1/4"		26.0	64.5	51.0	52.0			
M23391-16-12	25	-16	1"	3/4"		15.0	71.0	38.0	52.0			
M23391-16-16	25	-16	1"	1"		19.8	77.5	44.6	62.0			
M23391-16-20	25	-16	1"	1.1/4"		26.0	77.5	51.0	62.0			
M23391-16-24	25	-16	1"	1.1/2"		32.0	77.0	60.5	64.0			
M23391-20-16	31	-20	1.1/4"	1"		19.8	80.0	44.6	66.0			
M23391-20-20	31	-20	1.1/4"	1.1/4"		26.0	90.5	51.0	70.0			
M23391-20-24	31	-20	1.1/4"	1.1/2"		32.0	90.5	60.5	72.0			
M23391-20-32	31	-20	1.1/4"	2"		42.0	93.5	71.6	76.0			
M23391-24-20	38	-24	1.1/2"	1.1/4"		26.0	104.5	51.0	75.0			
M23391-24-24	38	-24	1.1/2"	1.1/2"		32.0	108.0	60.5	84.0			
M23391-24-32	38	-24	1.1/2"	2"		42.0	108.0	71.6	84.0			
M23391-32-24	51	-32	2"	1.1/2"		32.0	136.0	60.5	89.0			
M23391-32-32	51	-32	2"	2"		42.0	129.0	71.6	99.0			
M23391-32-40	51	-32	2"	2.1/2"		56.0	132.5	84.3	116.0			
M23391-40-32	63	-40	2.1/2"	2"		42.0	149.5	71.6	114.0			
M23391-40-40	63	-40	2.1/2"	2.1/2"		52.0	88.0	84.3	119.0			
M23391-40-40A150	63	-40	2.1/2"	2.1/2"		52.0	150.5	84.3	117.0			
M23391-40-48	63	-40	2.1/2"	3"		61.0	120.0	101.6	140.0			
M23391-48-48	76	-48	3"	3"		58.0	123.0	101.6	140.0			
M23391-48-56	76	-48	3"	3.1/2"		61.0	123.0	114.3	115.0			
M23391-56-56	89	-56	3.1/2"	3.1/2"		79.0	134.5	114.3	160.0			
M23391-64-64	102	-64	4"	4"		90.0	153.5	127.0	158.5			

All items are made from solid with the exception of M23391-40-40, M23391-40-48, M23391-48-48, M23391-48-56, M23391-56-56, M23391-64-64.

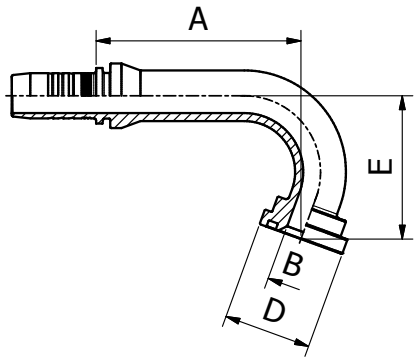


SAE STANDARD CONNECTIONS

M23391 LONG DROP

90° LONG DROP ISO/SAE CODE 61 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			FLANGE		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M23391-06-08041	10	-6	3/8"	1/2"		9.3	44.5	30.0	41.0			
M23391-12-12058	19	-12	3/4"	3/4"		15.0	64.5	38.0	58.0			
M23391-16-16070	25	-16	1"	1"		19.8	77.5	44.5	70.0			
M23391-16-20117	25	-16	1"	1.1/4"		26.0	77.5	51.0	117.0			
M23391-16-24107	25	-16	1"	1.1/2"		32.0	77.0	60.5	107.0			
M23391-20-20091	31	-20	1.1/4"	1.1/4"		26.0	90.5	51.0	91.0			
M23391-20-20100	31	-20	1.1/4"	1.1/4"		26.0	90.5	51.0	100.0			
M23391-20-20112	31	-20	1.1/4"	1.1/4"		26.0	90.5	51.0	112.0			
M23391-20-20130	31	-20	1.1/4"	1.1/4"		26.0	90.5	51.0	130.0			
M23391-20-20168	31	-20	1.1/4"	1.1/4"		26.0	90.5	51.0	168.0			
M23391-20-24118	31	-20	1.1/4"	1.1/2"		32.0	90.5	60.5	118.0			
M23391-20-24130	31	-20	1.1/4"	1.1/2"		32.0	90.5	60.5	130.0			
M23391-24-24104	38	-24	1.1/2"	1.1/2"		32.0	108.0	60.5	104.0			
M23391-24-24148	38	-24	1.1/2"	1.1/2"		32.0	108.0	60.5	148.0			
M23391-24-24172	38	-24	1.1/2"	1.1/2"		32.0	108.0	60.5	172.0			
M23391-24-32115	38	-24	1.1/2"	2"		42.0	108.0	71.6	115.0			
M23391-24-32172	38	-24	1.1/2"	2"		42.0	108.0	71.6	172.0			
M23391-32-32138	51	-32	2"	2"		42.0	129.0	71.5	138.0			
M23391-32-32203	51	-32	2"	2"		42.0	129.0	71.6	203.0			

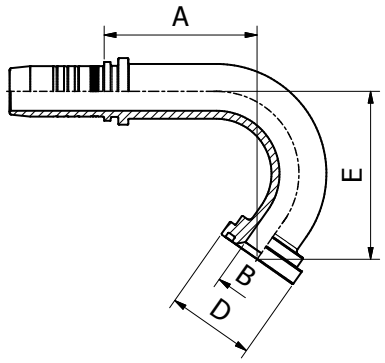


SAE STANDARD CONNECTIONS

M23301P

110° ISO/SAE CODE 61 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			FLANGE		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M23301-08-12P	12	-8	1/2"	3/4"		15.0	53.0	38.0	48.0			
M23301-12-12P	19	-12	3/4"	3/4"		15.0	89.0	38.0	62.0			
M23301-12-16P	19	-12	3/4"	1"		20.0	89.0	44.6	62.0			
M23301-16-16P	25	-16	1"	1"		19.8	88.5	44.6	79.0			
M23301-16-20133P	25	-16	1"	1.1/4"		26.0	69.0	51.0	133.0			
M23301-20-20P	31	-20	1.1/4"	1.1/4"		26.0	102.0	51.0	91.0			
M23301-20-24P	31	-20	1.1/4"	1.1/2"		32.0	96.5	60.5	93.0			
M23301-24-24119P	38	-24	1.1/2"	1.1/2"		32.0	105.5	60.5	119.0			
M23301-32-32P	51	-32	2"	2"		42.0	142.0	71.6	123.0			

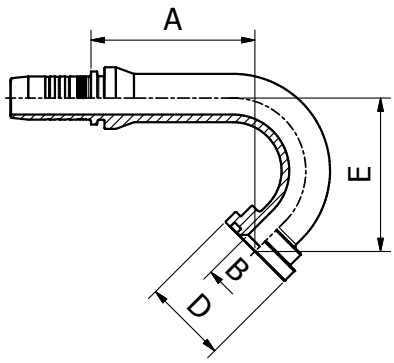


SAE STANDARD CONNECTIONS

M23301S

125° ISO/SAE CODE 61 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			FLANGE		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M23301-32-32151S	51	-32	2"	2"		42.0	118.5	71.6	151.0			



SAE STANDARD CONNECTIONS

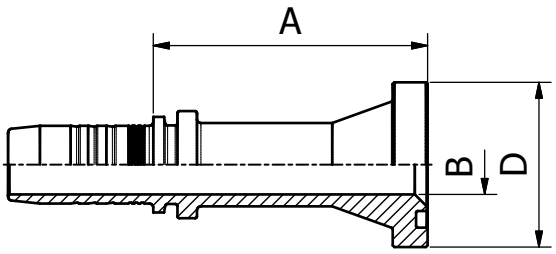
M23301T

135° ISO/SAE CODE 61 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			FLANGE		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M23301-12-12T	19	-12	3/4"	3/4"		15.0	74.5	38.0	70.0			
M23301-12-16T	19	-12	3/4"	1"		20.0	74.5	44.6	70.0			
M23301-16-16T	25	-16	1"	1"		19.8	70.0	44.6	88.5			

SAE STANDARD CONNECTIONS

M23611

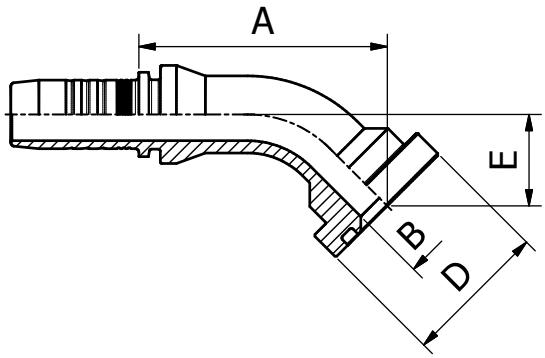


ISO/SAE CODE 62 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			FLANGE		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D				
M23611-08-08	12	-8	1/2"	1/2"		9.3	52.0	31.8				
M23611-08-12	12	-8	1/2"	3/4"		15.0	68.5	41.5				
M23611-10-08	16	-10	5/8"	1/2"		9.3	52.0	31.8				
M23611-10-12	16	-10	5/8"	3/4"		15.0	70.0	41.5				
M23611-10-16	16	-10	5/8"	1"		20.0	80.0	47.7				
M23611-12-12	19	-12	3/4"	3/4"		15.0	69.0	41.5				
M23611-12-16	19	-12	3/4"	1"		20.0	81.0	47.7				
M23611-16-16	25	-16	1"	1"		19.8	82.5	47.7				
M23611-16-20	25	-16	1"	1.1/4"		26.0	90.0	54.2				
M23611-20-16	31	-20	1.1/4"	1"		19.8	82.5	47.7				
M23611-20-20	31	-20	1.1/4"	1.1/4"		26.0	84.5	54.2				
M23611-20-24	31	-20	1.1/4"	1.1/2"		32.0	90.5	63.7				
M23611-24-24	38	-24	1.1/2"	1.1/2"		32.0	92.5	63.6				
M23611-32-32	51	-32	2"	2"		42.0	109.0	79.5				

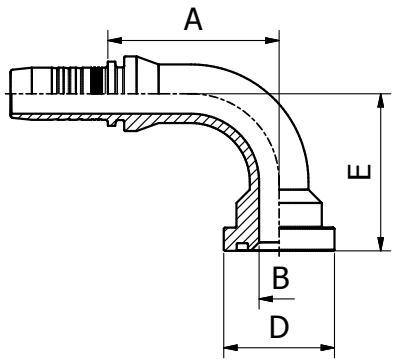
SAE STANDARD CONNECTIONS

M23641



45° ISO/SAE CODE 62 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			FLANGE		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M23641-08-08	12	-8	1/2"	1/2"		9.3	59.0	31.7	19.0			
M23641-08-12	12	-8	1/2"	3/4"		15.0	68.0	41.5	27.5			
M23641-10-08	16	-10	5/8"	1/2"		9.3	62.5	31.8	23.5			
M23641-10-12	16	-10	5/8"	3/4"		15.0	67.5	41.5	31.0			
M23641-12-12	19	-12	3/4"	3/4"		15.0	72.5	41.5	28.0			
M23641-12-16	19	-12	3/4"	1"		20.0	77.0	47.7	32.5			
M23641-16-12	25	-16	1"	3/4"		15.0	80.0	41.5	30.0			
M23641-16-16	25	-16	1"	1"		19.8	83.5	47.7	32.5			
M23641-16-20	25	-16	1"	1.1/4"		26.0	88.5	54.2	37.5			
M23641-20-20	31	-20	1.1/4"	1.1/4"		26.0	95.0	54.2	37.5			
M23641-20-24	31	-20	1.1/4"	1.1/2"		32.0	102.5	63.7	45.0			
M23641-24-24	38	-24	1.1/2"	1.1/2"		32.0	118.0	63.7	44.0			
M23641-24-32	38	-24	1.1/2"	2"		42.0	129.0	79.6	55.5			
M23641-32-32	51	-32	2"	2"		42.0	151.5	79.6	60.5			
M23641-32-32056	51	-32	2"	2"		42.0	147.5	79.6	56.5			



SAE STANDARD CONNECTIONS

M23691

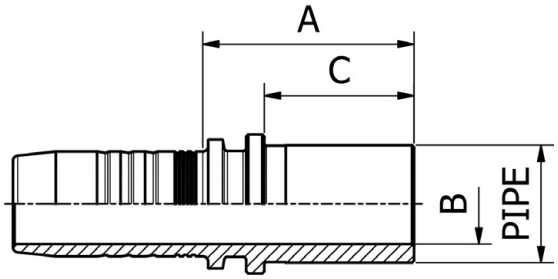
90° ISO/SAE CODE 62 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			FLANGE		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M23691-08-08	12	-8	1/2"	1/2"		9.3	54.5	31.8	45.0			
M23691-08-08040	12	-8	1/2"	1/2"		9.3	54.5	31.7	41.0			
M23691-08-12	12	-8	1/2"	3/4"		15.0	54.5	41.5	53.0			
M23691-10-08	16	-10	5/8"	1/2"		9.3	57.5	31.8	45.0			
M23691-10-12	16	-10	5/8"	3/4"		15.0	53.5	41.5	60.5			
M23691-10-16	16	-10	5/8"	1"		19.8	56.0	47.7	64.0			
M23691-12-08	19	-12	3/4"	1/2"		9.3	60.6	31.8	57.5			
M23691-12-12	19	-12	3/4"	3/4"		15.0	64.0	41.5	59.0			
M23691-12-16	19	-12	3/4"	1"		20.0	64.5	47.7	65.0			
M23691-16-12	25	-16	1"	3/4"		15.0	74.5	41.5	67.0			
M23691-16-16	25	-16	1"	1"		19.8	73.5	47.7	68.0			
M23691-16-20	25	-16	1"	1.1/4"		26.0	73.5	54.2	75.0			
M23691-20-16	31	-20	1.1/4"	1"		19.8	82.5	47.7	68.0			
M23691-20-20	31	-20	1.1/4"	1.1/4"		26.0	85.5	54.2	81.0			
M23691-20-20090	31	-20	1.1/4"	1.1/4"		26.0	85.5	54.1	90.0			
M23691-20-24	31	-20	1.1/4"	1.1/2"		32.0	85.5	63.7	91.5			
M23691-24-20	38	-24	1.1/2"	1.1/4"		26.0	105.0	54.2	91.0			
M23691-24-24	38	-24	1.1/2"	1.1/2"		32.0	106.0	63.7	94.5			
M23691-24-24104	38	-24	1.1/2"	1.1/2"		32.0	106.0	63.7	104.0			
M23691-24-32	38	-24	1.1/2"	2"		42.0	106.0	79.6	110.5			
M23691-32-32	51	-32	2"	2"		42.0	138.0	79.6	132.0			
M23691-32-32138	51	-32	2"	2"		42.0	138.0	79.6	138.0			

DIN STANDARD CONNECTIONS

M22010

METRIC STANDPIPE LIGHT DUTY
DIN 2353 / ISO 8434-1

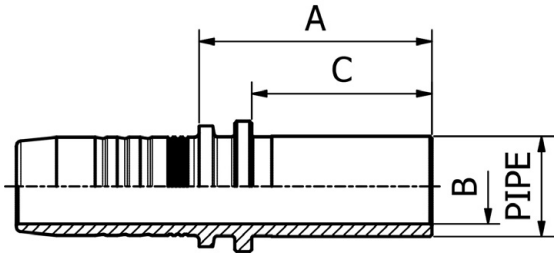


PART. REF.	HOSE BORE			Pipe		DIMENSIONS mm						
	DN	Dash	inch	mm		B	A	C				
M22010-03-04	5	- 3	3/16”	4.0		2.0	29.5	22.0				
M22010-03-06	5	- 3	3/16”	6.0		3.0	29.5	22.0				
M22010-04-06	6	- 4	1/4”	6.0		3.0	30.0	22.0				
M22010-05-08	8	- 5	5/16”	8.0		5.5	30.0	22.0				
M22010-05-10	8	- 5	5/16”	10.0		7.0	31.0	23.0				
M22010-06-10	10	- 6	3/8”	10.0		7.0	31.5	23.0				
M22010-06-12	10	- 6	3/8”	12.0		8.0	31.5	23.0				
M22010-06-15	10	- 6	3/8”	15.0		10.5	33.5	25.0				
M22010-08-12	12	- 8	1/2”	12.0		8.0	32.0	23.0				
M22010-08-15	12	- 8	1/2”	15.0		10.5	34.0	25.0				
M22010-08-18	12	- 8	1/2”	18.0		12.5	35.0	26.0				
M22010-10-18	16	- 10	5/8”	18.0		12.5	35.0	26.0				
M22010-10-22	16	- 10	5/8”	22.0		15.0	37.0	28.0				
M22010-12-18	19	- 12	3/4”	18.0		12.5	36.5	26.0				
M22010-12-22	19	- 12	3/4”	22.0		15.0	38.5	28.0				
M22010-16-28	25	- 16	1”	28.0		19.8	41.5	30.0				
M22010-20-35	31	- 20	1.1/4”	35.0		26.0	48.5	36.0				
M22010-24-42	38	- 24	1.1/2”	42.0		32.0	52.5	40.0				

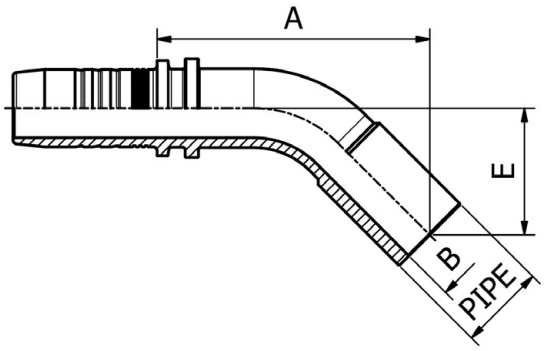
DIN STANDARD CONNECTIONS

M22110

METRIC STANDPIPE HEAVY DUTY
DIN 2353 / ISO 8434-1



PART. REF.	HOSE BORE			Pipe		DIMENSIONS mm						
	DN	Dash	inch	mm		B	A	C				
M22110-03-08	5	- 3	3/16”	8.0		3.0	31.0	24.0				
M22110-03-10	5	- 3	3/16”	10.0		3.0	29.5	22.0				
M22110-04-08	6	- 4	1/4”	8.0		4.0	32.0	24.0				
M22110-04-10	6	- 4	1/4”	10.0		4.0	34.0	26.0				
M22110-04-12	6	- 4	1/4”	12.0		7.0	34.0	26.0				
M22110-05-12	8	- 5	5/16”	12.0		7.0	34.0	26.0				
M22110-06-14	10	- 6	3/8”	14.0		8.0	37.5	29.0				
M22110-08-14	12	- 8	1/2”	14.0		9.3	38.0	29.0				
M22110-08-16	12	- 8	1/2”	16.0		10.5	39.0	30.0				
M22110-10-20	16	- 10	5/8”	20.0		12.5	45.0	36.0				
M22110-12-20	19	- 12	3/4”	20.0		15.0	46.5	36.0				
M22110-12-25	19	- 12	3/4”	25.0		15.0	50.5	40.0				
M22110-16-25	25	- 16	1”	25.0		15.0	51.5	40.0				
M22110-16-30	25	- 16	1”	30.0		19.8	55.5	44.0				
M22110-16-38	25	- 16	1”	38.0		26.0	61.5	50.0				
M22110-20-30	31	- 20	1.1/4”	30.0		20.5	56.5	44.0				
M22110-20-38	31	- 20	1.1/4”	38.0		26.0	62.5	50.0				
M22110-24-38	38	- 24	1.1/2”	38.0		26.0	62.5	50.0				

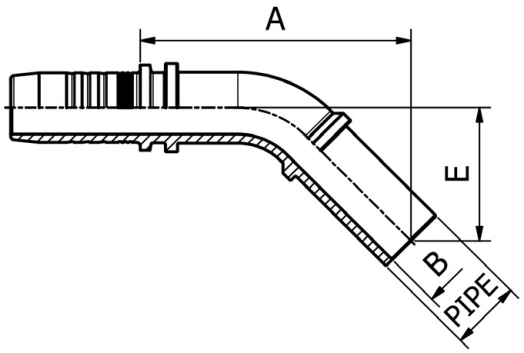


DIN STANDARD CONNECTIONS

M22040

45° METRIC STANDPIPE LIGHT DUTY
DIN 2353 / ISO 8434-1

PART. REF.	HOSE BORE			Pipe		DIMENSIONS mm						
	DN	Dash	inch	mm		B	A	E				
M22040-03-06	5	- 3	3/16”	6.0		3.0	37.5	20.5				
M22040-04-06	6	- 4	1/4”	6.0		3.0	38.0	20.5				
M22040-05-10	8	- 5	5/16”	10.0		7.0	44.5	22.5				
M22040-06-10	10	- 6	3/8”	10.0		7.0	47.5	23.0				
M22040-06-12	10	- 6	3/8”	12.0		8.0	49.5	25.0				
M22040-08-15	12	- 8	1/2”	15.0		10.5	58.0	28.0				
M22040-10-18	16	- 10	5/8”	18.0		12.5	63.5	30.5				
M22040-12-22	19	- 12	3/4”	22.0		15.0	69.0	32.0				
M22040-16-28	25	- 16	1”	28.0		19.8	81.5	37.0				

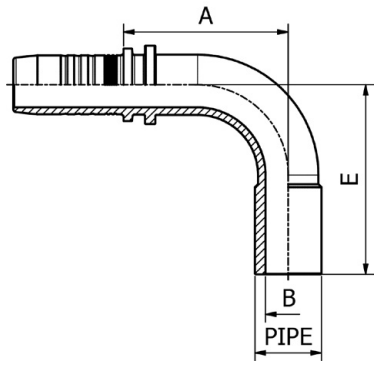


DIN STANDARD CONNECTIONS

M22140

45° METRIC STANDPIPE HEAVY DUTY
DIN 2353 / ISO 8434-1

PART. REF.	HOSE BORE			Pipe		DIMENSIONS mm						
	DN	Dash	inch	mm		B	A	E				
M22140-04-08	6	- 4	1/4”	8.0		4.0	42.0	22.0				
M22140-04-10	6	- 4	1/4”	10.0		6.0	44.0	24.0				
M22140-06-14	10	- 6	3/8”	14.0		9.3	54.5	29.0				
M22140-08-16	12	- 8	1/2”	16.0		10.5	61.0	30.0				
M22140-10-20	16	- 10	5/8”	20.0		12.5	69.0	36.0				
M22140-12-25	19	- 12	3/4”	25.0		15.0	80.5	40.5				
M22140-16-25	25	- 16	1”	25.0		15.0	82.0	41.0				

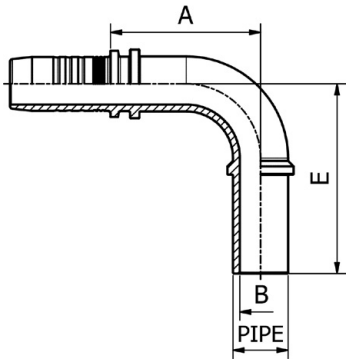


DIN STANDARD CONNECTIONS

M22090

90° METRIC STANDPIPE LIGHT DUTY
DIN 2353 / ISO 8434-1

PART. REF.	HOSE BORE			Pipe		DIMENSIONS mm						
	DN	Dash	inch	mm		B	A	E				
M22090-03-06	5	- 3	3/16”	6.0		3.0	22.5	34.0				
M22090-04-06	6	- 4	1/4”	6.0		3.0	23.0	34.0				
M22090-05-10	8	- 5	5/16”	10.0		7.0	29.5	40.0				
M22090-06-10	10	- 6	3/8”	10.0		7.0	33.0	42.5				
M22090-06-12	10	- 6	3/8”	12.0		8.0	34.0	45.0				
M22090-08-12	12	- 8	1/2”	12.0		8.0	34.5	45.0				
M22090-08-15	12	- 8	1/2”	15.0		10.5	42.0	52.0				
M22090-08-18	12	- 8	1/2”	18.0		12.5	42.0	55.0				
M22090-10-18	16	- 10	5/8”	18.0		12.5	49.0	59.0				
M22090-10-22	16	- 10	5/8”	22.0		15.0	53.5	63.0				
M22090-12-22	19	- 12	3/4”	22.0		15.0	54.5	63.0				
M22090-16-28	25	- 16	1”	28.0		19.8	67.5	75.0				
M22090-20-35	31	- 20	1.1/4”	35.0		26.0	80.5	94.0				

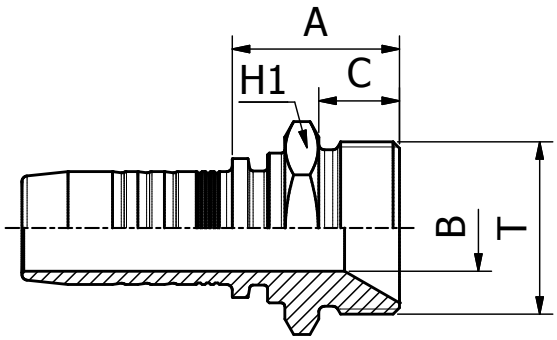


DIN STANDARD CONNECTIONS

M22190

90° METRIC STANDPIPE HEAVY DUTY
DIN 2353 / ISO 8434-1

PART. REF.	HOSE BORE			Pipe		DIMENSIONS mm						
	DN	Dash	inch	mm		B	A	E				
M22190-04-08	6	- 4	1/4”	8.0		4.0	27.0	38.0				
M22190-04-10	6	- 4	1/4”	10.0		6.0	27.0	41.0				
M22190-04-12	6	- 4	1/4”	12.0		7.0	27.0	44.0				
M22190-05-12	8	- 5	5/16”	12.0		7.0	30.5	44.0				
M22190-06-14	10	- 6	3/8”	14.0		9.3	35.0	51.0				
M22190-08-14	12	- 8	1/2”	14.0		9.3	42.0	53.5				
M22190-08-16	12	- 8	1/2”	16.0		10.5	43.0	55.0				
M22190-10-20	16	- 10	5/8”	20.0		12.5	49.0	66.5				
M22190-12-20	19	- 12	3/4”	20.0		15.0	54.5	69.0				
M22190-12-25	19	- 12	3/4”	25.0		15.0	57.5	75.0				
M22190-16-25	25	- 16	1”	25.0		15.0	61.5	76.5				
M22190-16-30	25	- 16	1”	30.0		19.8	69.5	87.0				

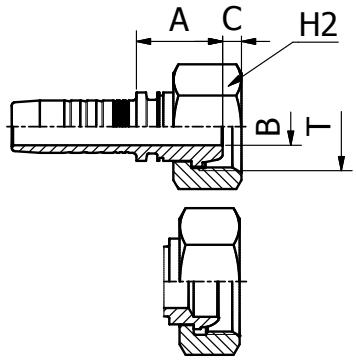


DIN STANDARD CONNECTIONS

M11010

METRIC MALE 60° CONE SEAT SUPER LIGHT - DIN 3863

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1			
M11010-04-12	6	- 4	1/4"	M12 X 1.5		4.0	19.5	8.0	14.0			
M11010-04-16	6	- 4	1/4"	M16 X 1.5		4.0	23.5	11.0	19.0			
M11010-05-16	8	- 5	5/16"	M16 X 1.5		5.5	23.5	11.0	19.0			
M11010-10-26	16	- 10	5/8"	M26 X 1.5		12.5	25.5	12.0	27.0			

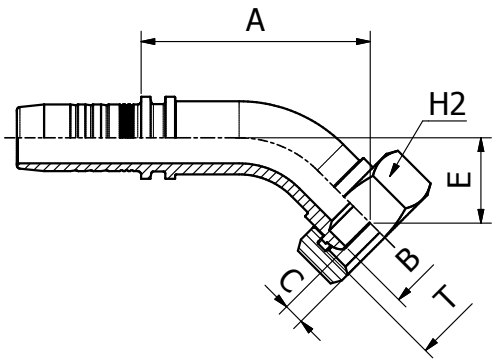


DIN STANDARD CONNECTIONS

M21012/M21013

METRIC FEMALE 60° CONE DIN 20078/3863

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H2			
M21012-03-10	5	-3	3/16"	M10 X1		3.0	18.5	1.8	14.0			
M21012-04-12	6	-4	1/4"	M12 X 1.5		4.0	19.5	3.9	17.0			
M21012-06-14	10	-6	3/8"	M14 X 1.5		6.0	19.5	3.9	17.0			
M21012-06-16	10	-6	3/8"	M16 X 1.5		8.0	21.5	3.8	19.0			
M21013-06-18	10	-6	3/8"	M18 X 1.5		10.0	19.5	4.5	22.0			
M21013-10-26	16	-10	5/8"	M26 X 1.5		12.5	22.0	2.0	32.0			
M21013-10-30	16	-10	5/8"	M30 X 1.5		20.0	20.0	6.0	36.0			
M21013-12-30	19	-12	3/4"	M30 X 1.5		20.0	21.0	6.0	36.0			
M21013-16-38	25	-16	1"	M38 X 1.5		26.0	23.0	7.5	46.0			
M21013-20-45	31	-20	1.1/4"	M45 X 1.5		33.0	23.5	8.0	50.0			
M21013-24-52	38	-24	1.1/2"	M52 X 1.5		40.0	25.0	8.0	60.0			
M21013-32-65	51	-32	2"	M65 X 2		42.0	35.0	5.2	75.0			

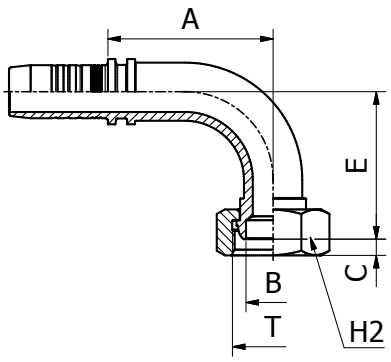


DIN STANDARD CONNECTIONS

M21043

45° METRIC FEMALE SWEPT ELBOW 60° CONE DIN 20078/3863

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M21043-12-30	19	- 12	3/4"	M30 X 1.5		20.0	67.5	7.0	25.0	36.0		
M21043-16-38	25	- 16	1"	M38 X 1.5		26.0	81.0	7.5	28.0	46.0		

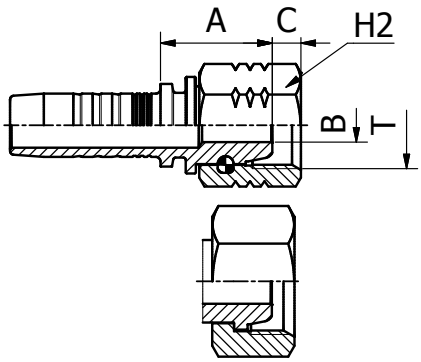


DIN STANDARD CONNECTIONS

M21093

90° METRIC FEMALE SWEPT ELBOW 60° CONE DIN 20078/3863

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M21093-12-30	19	- 12	3/4"	M 30X1.5		20.0	61.0	6.0	54.5	36.0		
M21093-16-38	25	- 16	1"	M 38X1.5		26.0	76.5	7.5	63.0	46.0		
M21093-20-45	31	- 20	1.1/4"	M 45X1.5		33.0	92.0	8.0	81.0	50.0		

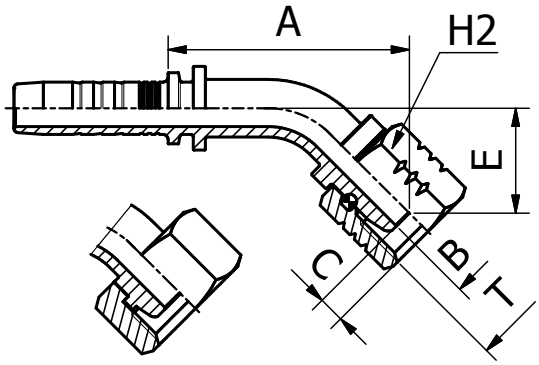


DIN STANDARD CONNECTIONS

M21312/M21313

METRIC FEMALE MULTISEAL
DIN 20078/3868

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	H2			
M21312-04-12	6	- 4	1/4"	M 12X1.5	6.0	4.0	19.5	4.0	17.0			
M21312-06-14	10	- 6	3/8"	M 14X1.5	8.0	4.0	19.5	3.9	17.0			
M21312-06-16	10	- 6	3/8"	M 16X1.5	10.0	7.0	21.5	5.0	19.0			
M21312-08-18	12	- 8	1/2"	M 18X1.5	12.0	7.0	23.0	5.9	22.0			
M21312-10-22	16	- 10	5/8"	M 22X1.5	15.0	9.3	23.5	5.5	27.0			
M21313-03-12	5	- 3	3/16"	M 12X1.5	6.0	3.0	18.5	3.2	14.0			
M21313-04-14	6	- 4	1/4"	M 14X1.5	8.0	4.0	19.5	3.0	17.0			
M21313-04-16	6	- 4	1/4"	M 16X1.5	10.0	4.0	19.5	4.0	19.0			
M21313-05-16	8	- 5	5/16"	M 16X1.5	10.0	5.5	19.5	4.0	19.0			
M21313-05-18	8	- 5	5/16"	M 18X1.5	12.0	5.5	19.5	4.0	22.0			
M21313-06-18	10	- 6	3/8"	M 18X1.5	12.0	7.0	20.0	4.0	22.0			
M21313-06-22	10	- 6	3/8"	M 22X1.5	15.0	7.0	21.0	4.7	27.0			
M21313-08-22	12	- 8	1/2"	M 22X1.5	15.0	9.3	21.5	4.7	27.0			
M21313-10-26	16	- 10	5/8"	M 26X1.5	18.0	12.5	22.0	5.0	32.0			

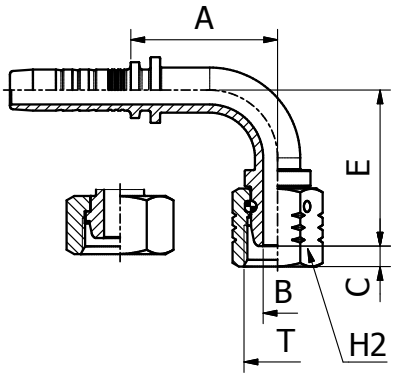


DIN STANDARD CONNECTIONS

M21342/M21343

45° METRIC FEMALE SWEPT ELBOW MULTISEAL
DIN 20078/3868

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	E	H2		
M21342-05-14	8	- 5	5/16"	M 14X1.5	8.0	4.0	40.0	3.9	19.5	17.0		
M21342-06-16	10	- 6	3/8"	M 16X1.5	10.0	7.0	46.0	5.0	20.0	19.0		
M21343-04-14	6	- 4	1/4"	M 14X1.5	8.0	4.0	36.5	3.0	15.0	17.0		
M21343-04-16	6	- 4	1/4"	M 16X1.5	10.0	4.0	36.5	4.0	15.0	19.0		
M21343-05-16	8	- 5	5/16"	M 16X1.5	10.0	5.5	39.0	4.0	15.0	19.0		
M21343-06-18	10	- 6	3/8"	M 18X1.5	12.0	7.0	42.0	4.0	15.5	22.0		
M21343-06-22	10	- 6	3/8"	M 22X1.5	15.0	7.0	42.5	4.7	15.5	27.0		
M21343-08-22	12	- 8	1/2"	M 22X1.5	15.0	9.3	49.5	4.7	17.0	27.0		
M21343-10-26	16	- 10	5/8"	M 26X1.5	18.0	12.5	60.0	5.0	24.0	32.0		

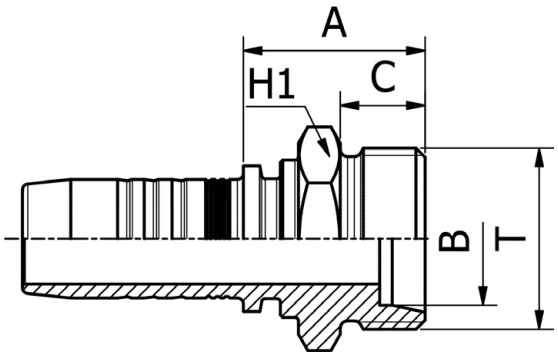


DIN STANDARD CONNECTIONS

M21392/M21393

90° METRIC FEMALE SWEPT ELBOW MULTISEAL DIN 20078/3868

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	E	H2		
M21392-04-12	6	- 4	1/4"	M 12X1.5	6.0	4.0	28.0	4.0	30.5	17.0		
M21392-06-16	10	- 6	3/8"	M 16X1.5	10.0	7.0	35.5	5.0	38.0	19.0		
M21392-12-26	19	- 12	3/4"	M 26X1.5	18.0	15.0	61.5	2.3	63.0	32.0		
M21393-03-12	5	- 3	3/16"	M 12X1.5	6.0	3.0	26.0	3.2	27.0	14.0		
M21393-04-14	6	- 4	1/4"	M 14X1.5	8.0	4.0	29.5	3.0	29.5	17.0		
M21393-04-16	6	- 4	1/4"	M 16X1.5	10.0	4.0	29.5	4.0	29.5	19.0		
M21393-05-16	8	- 5	5/16"	M 16X1.5	10.0	5.5	32.0	4.0	29.0	19.0		
M21393-05-18	8	- 5	5/16"	M 18X1.5	12.0	7.0	32.0	4.0	30.5	22.0		
M21393-06-18	10	- 6	3/8"	M 18X1.5	12.0	7.0	36.5	4.0	31.5	22.0		
M21393-06-22	10	- 6	3/8"	M 22X1.5	15.0	7.0	36.5	4.7	32.0	27.0		
M21393-08-22	12	- 8	1/2"	M 22X1.5	15.0	9.3	45.0	4.7	36.5	27.0		
M21393-10-26	16	- 10	5/8"	M 26X1.5	18.0	12.5	51.5	5.0	50.0	32.0		

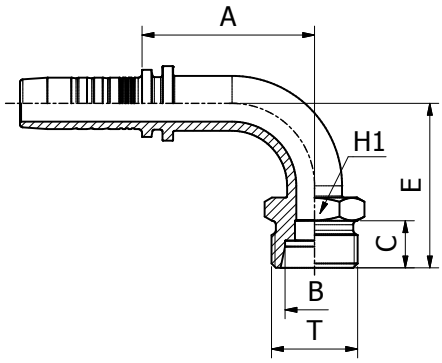


DIN STANDARD CONNECTIONS

M11110

METRIC MALE 24° CONE SEAT LIGHT DUTY DIN 20066 / ISO 12151-2

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	H1			
M11110-03-12	5	- 3	3/16"	M 12X1.5	6.0	3.0	21.0	10.0	14.0			
M11110-04-12	6	- 4	1/4"	M 12X1.5	6.0	4.0	21.5	10.0	14.0			
M11110-04-14	6	- 4	1/4"	M 14X1.5	8.0	4.0	21.5	10.0	14.0			
M11110-04-16	6	- 4	1/4"	M 16X1.5	10.0	7.0	23.5	11.0	17.0			
M11110-04-18	6	- 4	1/4"	M 18X1.5	12.0	9.0	23.5	11.0	19.0			
M11110-05-16	8	- 5	5/16"	M 16X1.5	10.0	7.0	24.0	11.0	17.0			
M11110-05-18	8	- 5	5/16"	M 18X1.5	12.0	9.0	24.0	11.0	19.0			
M11110-06-16	10	- 6	3/8"	M 16X1.5	10.0	7.0	24.0	11.0	17.0			
M11110-06-18	10	- 6	3/8"	M 18X1.5	12.0	9.0	24.5	11.0	19.0			
M11110-06-22	10	- 6	3/8"	M 22X1.5	15.0	10.0	25.5	12.0	22.0			
M11110-06-26	10	- 6	3/8"	M 26X1.5	18.0	12.5	26.5	12.0	27.0			
M11110-08-16	12	- 8	1/2"	M 16X1.5	10.0	7.0	24.5	11.0	22.0			
M11110-08-18	12	- 8	1/2"	M 18X1.5	12.0	9.3	24.5	11.0	22.0			
M11110-08-22	12	- 8	1/2"	M 22X1.5	15.0	10.0	25.5	12.0	22.0			
M11110-08-26	12	- 8	1/2"	M 26X1.5	18.0	12.5	26.5	12.0	27.0			
M11110-10-22	16	- 10	5/8"	M 22X1.5	15.0	10.0	25.5	12.0	22.0			
M11110-10-26	16	- 10	5/8"	M 26X1.5	18.0	12.5	26.5	12.0	27.0			
M11110-10-30	16	- 10	5/8"	M 30X2	22.0	15.0	28.5	14.0	30.0			
M11110-12-26	19	- 12	3/4"	M 26X1.5	18.0	15.0	28.0	12.0	27.0			
M11110-12-30	19	- 12	3/4"	M 30X2	22.0	15.0	30.0	14.0	30.0			
M11110-12-36	19	- 12	3/4"	M 36X2	28.0	19.8	31.0	14.0	36.0			
M11110-16-36	25	- 16	1"	M 36X2	28.0	19.8	32.5	14.0	36.0			
M11110-20-45	31	- 20	1.1/4"	M 45X2	35.0	26.0	40.5	16.0	46.0			
M11110-24-52	38	- 24	1.1/2"	M 52X2	42.0	32.0	43.0	16.0	55.0			

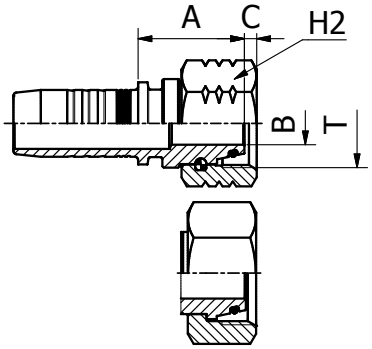


DIN STANDARD CONNECTIONS

M11190

90° METRIC MALE 24° CONE SEAT LIGHT DUTY
DIN 20066 / ISO 12151-2

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	E	H1		
M11190-04-14	6	- 4	1/4”	M 14X1.5	8.0	4.0	27.0	10.0	33.0	14.0		
M11190-06-18	10	- 6	3/8”	M 18X1.5	12.0	9.0	32.0	11.0	35.5	19.0		

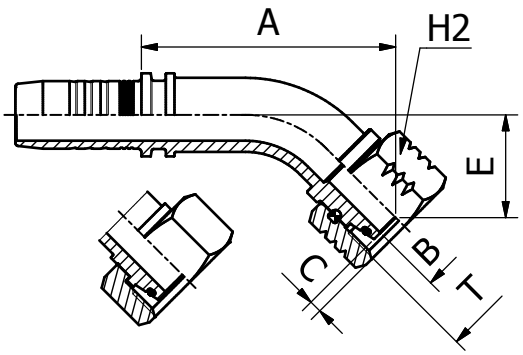


DIN STANDARD CONNECTIONS

M21512/M21513

METRIC O-RING FEMALE
24° CONE LIGHT DUTY
DIN 20066 / ISO 12151-2

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	H2			
M21512-04-12	6	- 4	1/4”	M 12X1.5	6.0	3.0	21.0	2.2	17.0			
M21512-05-14	8	- 5	5/16”	M 14X1.5	8.0	4.0	20.0	2.9	17.0			
M21512-06-16	10	- 6	3/8”	M 16X1.5	10.0	6.0	23.0	3.0	19.0			
M21512-08-18	12	- 8	1/2”	M 18X1.5	12.0	7.0	29.0	2.9	22.0			
M21512-10-18	16	- 10	5/8”	M 18X1.5	12.0	7.0	29.0	2.9	22.0			
M21512-10-22	16	- 10	5/8”	M 22X1.5	15.0	9.5	26.5	2.4	27.0			
M21512-12-22	19	- 12	3/4”	M 22X1.5	15.0	9.5	31.0	2.4	27.0			
M21512-12-26	19	- 12	3/4”	M 26X1.5	18.0	12.5	31.0	2.3	32.0			
M21512-16-30	25	- 16	1”	M 30X2	22.0	15.0	34.0	4.2	36.0			
M21512-20-36	31	- 20	1.1/4”	M 36X2	28.0	19.8	35.5	5.0	41.0			
M21512-24-45	38	- 24	1.1/2”	M 45X2	35.0	26.0	42.5	5.8	50.0			
M21512-32-52	51	- 32	2”	M 52X2	42.0	32.0	50.5	5.6	60.0			
M21513-03-12	5	- 3	3/16”	M 12X1.5	6.0	3.0	22.0	0.7	14.0			
M21513-03-14	5	- 3	3/16”	M 14X1.5	8.0	4.0	24.5	1.3	17.0			
M21513-04-14	6	- 4	1/4”	M 14X1.5	8.0	4.0	22.0	1.3	17.0			
M21513-04-16	6	- 4	1/4”	M 16X1.5	10.0	6.0	22.5	1.8	19.0			
M21513-04-18	6	- 4	1/4”	M 18X1.5	12.0	7.0	22.0	2.0	22.0			
M21513-05-16	8	- 5	5/16”	M 16X1.5	10.0	6.0	22.5	1.8	19.0			
M21513-05-18	8	- 5	5/16”	M 18X1.5	12.0	7.0	22.0	2.0	22.0			
M21513-06-18	10	- 6	3/8”	M 18X1.5	12.0	7.0	22.5	2.0	22.0			
M21513-06-22	10	- 6	3/8”	M 22X1.5	15.0	9.3	25.0	1.5	27.0			
M21513-08-22	12	- 8	1/2”	M 22X1.5	15.0	9.3	25.5	1.5	27.0			
M21513-08-26	12	- 8	1/2”	M 26X1.5	18.0	12.5	26.0	2.0	32.0			
M21513-10-26	16	- 10	5/8”	M 26X1.5	18.0	12.5	26.0	2.0	32.0			
M21513-10-30	16	- 10	5/8”	M 30X2	22.0	15.0	34.0	3.0	36.0			
M21513-10-36	16	- 10	5/8”	M 36X2	28.0	20.0	30.5	3.7	41.0			
M21513-12-30	19	- 12	3/4”	M 30X2	22.0	15.0	28.0	3.0	36.0			
M21513-12-36	19	- 12	3/4”	M 36X2	28.0	20.0	28.5	3.7	41.0			
M21513-16-36	25	- 16	1”	M 36X2	28.0	19.8	29.5	3.7	41.0			
M21513-16-45	25	- 16	1”	M 45X2	35.0	26.0	39.0	4.0	50.0			
M21513-20-45	31	- 20	1.1/4”	M 45X2	35.0	26.0	33.0	4.0	50.0			
M21513-20-52	31	- 20	1.1/4”	M 52X2	42.0	32.0	32.5	4.5	60.0			
M21513-24-52	38	- 24	1.1/2”	M 52X2	42.0	32.0	33.0	4.5	60.0			

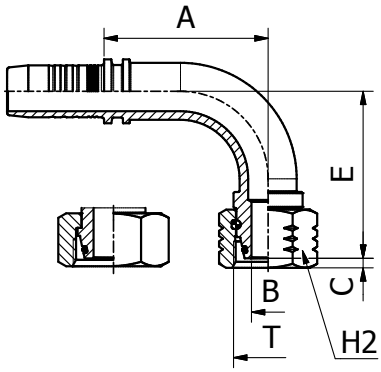


DIN STANDARD CONNECTIONS

M21542/M21543

45° METRIC O-RING FEMALE SWEPT ELBOW
24° CONE LIGHT DUTY
DIN 20066 / ISO 12151-2

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm					
	DN	Dash	inch	T	mm	B	A	C	E	H2	
M21542-04-12	6	- 4	1/4”	M 12X1.5	6.0	3.0	39.0	2.2	18.0	17.0	
M21542-06-16	10	- 6	3/8”	M 16X1.5	10.0	6.0	47.5	3.0	21.5	19.0	
M21542-08-18	12	- 8	1/2”	M 18X1.5	12.0	7.0	56.5	2.9	25.0	22.0	
M21542-10-22	16	- 10	5/8”	M 22X1.5	15.0	9.3	65.5	3.0	29.0	27.0	
M21542-12-26	19	- 12	3/4”	M 26X1.5	18.0	12.5	73.0	2.3	31.0	32.0	
M21542-20-36	31	- 20	1.1/4”	M 36X2	28.0	19.8	107.5	5.0	44.0	41.0	
M21542-24-36	38	- 24	1.1/2”	M 36X2	28.0	19.8	113.0	5.0	34.5	41.0	
M21543-03-12	5	- 3	3/16”	M 12X1.5	6.0	3.0	35.0	0.7	16.0	14.0	
M21543-04-14	6	- 4	1/4”	M 14X1.5	8.0	4.0	38.0	1.3	16.5	17.0	
M21543-04-16	6	- 4	1/4”	M 16X1.5	10.0	6.0	38.0	1.8	17.0	19.0	
M21543-04-18	6	- 4	1/4”	M 18X1.5	12.0	7.0	38.5	2.0	17.5	22.0	
M21543-05-16	8	- 5	5/16”	M 16X1.5	10.0	6.0	41.5	1.8	17.5	19.0	
M21543-05-18	8	- 5	5/16”	M 18X1.5	12.0	7.0	41.5	2.0	17.0	22.0	
M21543-06-18	10	- 6	3/8”	M 18X1.5	12.0	7.0	43.5	2.0	16.5	22.0	
M21543-06-22	10	- 6	3/8”	M 22X1.5	15.0	9.3	45.0	1.5	18.0	27.0	
M21543-08-22	12	- 8	1/2”	M 22X1.5	15.0	9.3	52.0	1.5	19.0	27.0	
M21543-08-26	12	- 8	1/2”	M 26X1.5	18.0	12.5	52.5	2.0	19.5	32.0	
M21543-10-26	16	- 10	5/8”	M 26X1.5	18.0	12.5	62.0	2.0	26.5	32.0	
M21543-12-30	19	- 12	3/4”	M 30X2	22.0	15.0	71.0	3.0	28.5	36.0	
M21543-12-36	19	- 12	3/4”	M 36X2	28.0	19.8	72.0	3.7	30.0	41.0	
M21543-16-36	25	- 16	1”	M 36X2	28.0	19.8	85.0	3.7	32.0	41.0	
M21543-20-45	31	- 20	1.1/4”	M 45X2	35.0	26.0	100.0	4.0	36.0	50.0	
M21543-20-52	31	- 20	1.1/4”	M 52X2	42.0	32.0	100.0	4.5	42.0	60.0	
M21543-24-52	38	- 24	1.1/2”	M 52X2	42.0	32.0	117.0	4.5	44.5	60.0	

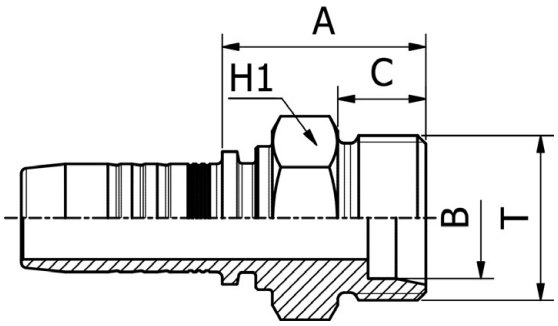


DIN STANDARD CONNECTIONS

M21592/M21593

90° METRIC O-RING FEMALE SWEPT ELBOW
24° CONE LIGHT DUTY
DIN 20066 / ISO 12151-2

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	E	H2		
M21592-04-12	6	- 4	1/4”	M 12X1.5	6.0	3.0	28.5	2.2	32.5	17.0		
M21592-05-14	8	- 5	5/16”	M 14X1.5	8.0	4.0	31.0	2.9	33.0	17.0		
M21592-06-16	10	- 6	3/8”	M 16X1.5	10.0	6.0	35.5	3.0	40.0	19.0		
M21592-08-18	12	- 8	1/2”	M 18X1.5	12.0	7.0	44.0	2.9	48.0	22.0		
M21592-10-22	16	- 10	5/8”	M 22X1.5	15.0	9.3	53.5	3.0	57.5	27.0		
M21592-12-26	19	- 12	3/4”	M 26X1.5	18.0	12.5	61.5	2.3	63.0	32.0		
M21592-16-30	25	- 16	1”	M 30X2	22.0	15.0	79.5	4.2	80.5	36.0		
M21592-20-36	31	- 20	1.1/4”	M 36X2	28.0	19.8	93.5	5.0	92.0	41.0		
M21592-24-36	38	- 24	1.1/2”	M 36X2	28.0	19.8	97.0	5.0	68.0	41.0		
M21592-32-52	51	- 32	2”	M 52X2	42.0	32.0	131.0	5.6	119.0	60.0		
M21593-03-12	5	- 3	3/16”	M 12X1.5	6.0	3.0	26.0	0.7	30.0	14.0		
M21593-03-14	5	- 3	3/16”	M 14X1.5	8.0	4.0	29.0	1.3	31.5	17.0		
M21593-04-14	6	- 4	1/4”	M 14X1.5	8.0	4.0	29.5	1.3	31.5	17.0		
M21593-04-16	6	- 4	1/4”	M 16X1.5	10.0	6.0	29.5	1.8	32.0	19.0		
M21593-04-18	6	- 4	1/4”	M 18X1.5	12.0	7.0	29.5	2.0	33.0	22.0		
M21593-05-16	8	- 5	5/16”	M 16X1.5	10.0	6.0	32.0	1.8	32.5	19.0		
M21593-05-18	8	- 5	5/16”	M 18X1.5	12.0	7.0	32.0	2.0	32.5	22.0		
M21593-05-22	8	- 5	5/16”	M 22X1.5	15.0	9.3	36.0	1.5	35.0	27.0		
M21593-06-18	10	- 6	3/8”	M 18X1.5	12.0	7.0	36.5	2.0	33.5	22.0		
M21593-06-22	10	- 6	3/8”	M 22X1.5	15.0	9.3	36.5	1.5	35.0	27.0		
M21593-08-22	12	- 8	1/2”	M 22X1.5	15.0	9.3	45.0	1.5	39.5	27.0		
M21593-08-26	12	- 8	1/2”	M 26X1.5	18.0	12.5	45.0	2.0	40.0	32.0		
M21593-10-26	16	- 10	5/8”	M 26X1.5	18.0	12.5	51.5	2.0	53.0	32.0		
M21593-10-30	16	- 10	5/8”	M 30X2	22.0	15.0	51.5	3.0	54.0	36.0		
M21593-12-30	19	- 12	3/4”	M 30X2	22.0	15.0	61.5	3.0	59.5	36.0		
M21593-12-36	19	- 12	3/4”	M 36X2	28.0	19.8	61.5	3.7	61.0	41.0		
M21593-16-36	25	- 16	1”	M 36X2	28.0	19.8	76.5	3.7	69.5	41.0		
M21593-16-45	25	- 16	1”	M 45X2	35.0	26.0	79.0	4.0	72.0	50.0		
M21593-20-45	31	- 20	1.1/4”	M 45X2	35.0	26.0	93.5	4.0	81.0	50.0		
M21593-24-52	38	- 24	1.1/2”	M 52X2	42.0	32.0	107.5	4.5	98.0	60.0		

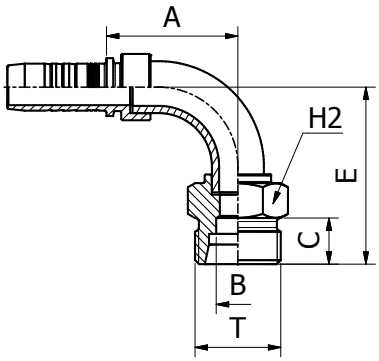


DIN STANDARD CONNECTIONS

M11210

METRIC MALE 24° CONE SEAT HEAVY DUTY
DIN 20066 / ISO 12151-2

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	H1			
M11210-04-16	6	- 4	1/4”	M 16X1.5	8.0	5.5	25.5	12.0	17.0			
M11210-04-18	6	- 4	1/4”	M 18X1.5	10.0	6.0	26.5	12.0	19.0			
M11210-04-20	6	- 4	1/4”	M 20X1.5	12.0	7.0	29.0	12.0	22.0			
M11210-05-16	8	- 5	5/16”	M 16X1.5	8.0	5.5	26.0	12.0	17.0			
M11210-05-18	8	- 5	5/16”	M 18X1.5	10.0	7.0	26.5	12.0	19.0			
M11210-05-20	8	- 5	5/16”	M 20X1.5	12.0	7.0	29.0	12.0	22.0			
M11210-06-18	10	- 6	3/8”	M 18X1.5	10.0	7.0	27.0	12.0	19.0			
M11210-06-20	10	- 6	3/8”	M 20X1.5	12.0	7.0	29.0	12.0	22.0			
M11210-06-22	10	- 6	3/8”	M 22X1.5	14.0	8.0	31.0	14.0	22.0			
M11210-08-20	12	- 8	1/2”	M 20X1.5	12.0	9.3	29.5	12.0	22.0			
M11210-08-22	12	- 8	1/2”	M 22X1.5	14.0	9.3	31.5	14.0	22.0			
M11210-08-24	12	- 8	1/2”	M 24X1.5	16.0	9.3	31.5	14.0	24.0			
M11210-10-30	16	- 10	5/8”	M 30X2	20.0	15.0	35.5	16.0	30.0			
M11210-10-36	16	- 10	5/8”	M 36X2	25.0	19.8	40.0	18.0	36.0			
M11210-12-30	19	- 12	3/4”	M 30X2	20.0	15.0	37.0	16.0	30.0			
M11210-12-36	19	- 12	3/4”	M 36X2	25.0	19.8	41.0	18.0	36.0			
M11210-16-36	25	- 16	1”	M 36X2	25.0	19.8	42.5	18.0	36.0			
M11210-16-42	25	- 16	1”	M 42X2	30.0	25.0	44.5	20.0	46.0			
M11210-20-52	31	- 20	1.1/4”	M 52X2	38.0	30.0	51.0	22.0	55.0			

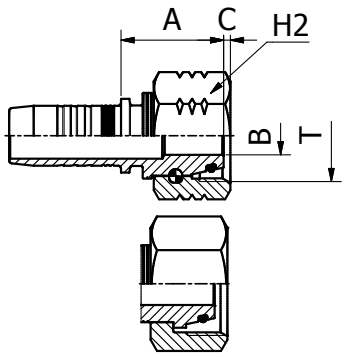


DIN STANDARD CONNECTIONS

M11290

90° METRIC MALE 24° CONE SEAT HEAVY DUTY
DIN 20066 / ISO 12151-2

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	E	H1		
M11290-05-20	8	- 5	5/16”	M 20X1.5	12.0	7.0	29.0	12.0	36.5	22.0		
M11290-10-30	16	- 10	5/8”	M 30X2	20.0	15.0	45.5	16.0	61.5	30.0		

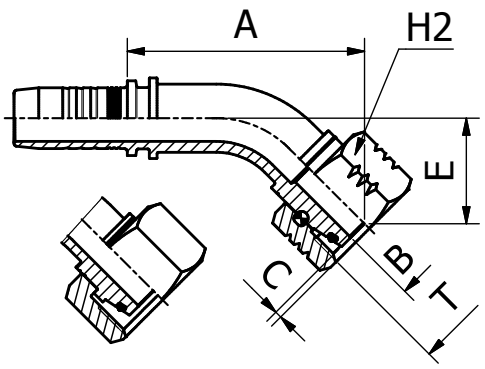


DIN STANDARD CONNECTIONS

M21612/M21613

METRIC O-RING FEMALE 24° CONE HEAVY DUTY DIN 20066 / ISO 12151-2

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	H2			
M21612-08-20	12	- 8	1/2”	M 20X1.5	12.0	7.0	29.0	2.5	24.0			
M21612-08-22	12	- 8	1/2”	M 22X1.5	14.0	7.0	27.0	2.5	27.0			
M21612-10-24	16	- 10	5/8”	M 24X1.5	16.0	9.3	29.5	4.0	30.0			
M21612-12-24	19	- 12	3/4”	M 24X1.5	16.0	9.3	30.5	4.0	30.0			
M21612-12-30	19	- 12	3/4”	M 30X2	20.0	12.5	33.5	2.2	36.0			
M21612-16-30	25	- 16	1”	M 30X2	20.0	12.5	34.5	2.2	36.0			
M21612-16-36	25	- 16	1”	M 36X2	25.0	15.0	35.5	1.7	41.0			
M21613-03-14	5	- 3	3/16”	M 14X1.5	6.0	2.5	25.5	3.5	17.0			
M21613-03-16	5	- 3	3/16”	M 16X1.5	8.0	3.0	21.5	3.4	19.0			
M21613-04-14	6	- 4	1/4”	M 14X1.5	6.0	3.0	23.5	1.9	17.0			
M21613-04-16	6	- 4	1/4”	M 16X1.5	8.0	4.0	22.0	3.4	19.0			
M21613-04-18	6	- 4	1/4”	M 18X1.5	10.0	4.0	28.0	2.5	22.0			
M21613-04-20	6	- 4	1/4”	M 20X1.5	12.0	7.0	26.0	2.0	24.0			
M21613-05-18	8	- 5	5/16”	M 18X1.5	10.0	5.5	28.0	2.5	22.0			
M21613-05-20	8	- 5	5/16”	M 20X1.5	12.0	5.5	25.0	2.0	24.0			
M21613-06-18	10	- 6	3/8”	M 18X1.5	10.0	7.0	28.5	2.5	22.0			
M21613-06-20	10	- 6	3/8”	M 20X1.5	12.0	7.0	25.5	2.0	24.0			
M21613-06-22	10	- 6	3/8”	M 22X1.5	14.0	7.0	32.5	3.0	27.0			
M21613-06-24	10	- 6	3/8”	M 24X1.5	16.0	7.0	32.0	4.0	30.0			
M21613-08-24	12	- 8	1/2”	M 24X1.5	16.0	9.3	26.5	4.0	30.0			
M21613-08-30	12	- 8	1/2”	M 30X2	20.0	12.5	37.0	3.5	36.0			
M21613-10-30	16	- 10	5/8”	M 30X2	20.0	12.5	30.5	3.5	36.0			
M21613-10-36	16	- 10	5/8”	M 36X2	25.0	15.0	40.0	4.5	41.0			
M21613-12-36	19	- 12	3/4”	M 36X2	25.0	15.0	34.0	4.5	41.0			
M21613-16-42	25	- 16	1”	M 42X2	30.0	19.8	35.5	6.3	50.0			
M21613-20-52	31	- 20	1.1/4”	M 52X2	38.0	26.0	37.5	8.0	60.0			
M21613-24-52	38	- 24	1.1/2”	M 52X2	38.0	26.0	49.5	8.0	60.0			

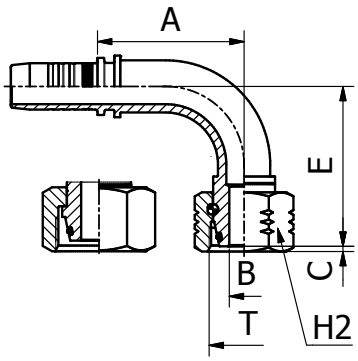


DIN STANDARD CONNECTIONS

M21642/M21643

45° METRIC O-RING FEMALE SWEPT ELBOW
24° CONE HEAVY DUTY
DIN 20066 / ISO 12151-2

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	E	H2		
M21642-06-18	10	- 6	3/8”	M 18X1.5	10.0	4.0	49.0	3.9	23.0	22.0		
M21642-08-22	12	- 8	1/2”	M 22X1.5	14.0	7.0	57.5	2.5	25.5	27.0		
M21642-12-30	19	- 12	3/4”	M 30X2	20.0	12.5	76.5	2.2	34.0	36.0		
M21642-16-36	25	- 16	1”	M 36X2	25.0	15.0	98.0	1.7	43.5	41.0		
M21642-24-52	38	- 24	1.1/2”	M 52X2	38.0	24.7	111.0	8.8	48.0	60.0		
M21643-04-14	6	- 4	1/4”	M 14X1.5	6.0	3.0	38.5	1.9	17.5	17.0		
M21643-04-16	6	- 4	1/4”	M 16X1.5	8.0	4.0	36.5	3.4	15.0	19.0		
M21643-04-18	6	- 4	1/4”	M 18X1.5	10.0	4.0	37.5	2.5	16.5	22.0		
M21643-05-18	8	- 5	5/16”	M 18X1.5	10.0	4.0	42.5	2.5	18.0	22.0		
M21643-05-20	8	- 5	5/16”	M 20X1.5	12.0	5.5	42.0	2.0	18.5	24.0		
M21643-06-20	10	- 6	3/8”	M 20X1.5	12.0	7.0	45.0	2.5	18.0	24.0		
M21643-06-22	10	- 6	3/8”	M 22X1.5	14.0	7.0	45.5	3.0	18.5	27.0		
M21643-08-24	12	- 8	1/2”	M 24X1.5	16.0	9.3	52.5	4.0	20.0	30.0		
M21643-10-30	16	- 10	5/8”	M 30X2	20.0	12.5	65.5	3.5	29.5	36.0		
M21643-12-36	19	- 12	3/4”	M 36X2	25.0	15.0	75.0	4.5	32.5	41.0		
M21643-16-42	25	- 16	1”	M 42X2	30.0	19.8	90.0	6.3	35.5	50.0		
M21643-20-52	31	- 20	1.1/4”	M 52X2	38.0	26.0	103.0	8.0	39.5	60.0		

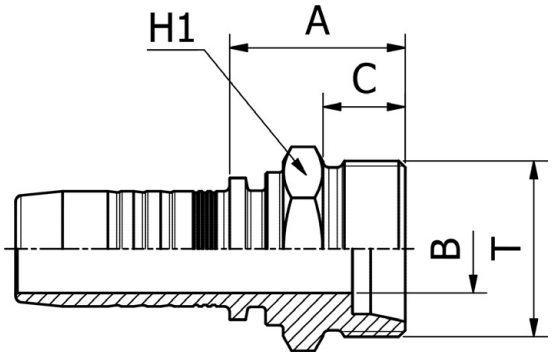


DIN STANDARD CONNECTIONS

M21692/M21693

90° METRIC O-RING FEMALE SWEPT ELBOW
24° CONE HEAVY DUTY
DIN 20066 / ISO 12151-2

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	E	H2		
M21692-06-18	10	- 6	3/8”	M 18X1.5	10.0	4.0	35.5	3.9	42.5	22.0		
M21692-08-22	12	- 8	1/2”	M 22X1.5	14.0	7.0	44.0	2.5	48.5	27.0		
M21692-10-24	16	- 10	5/8”	M 24X1.5	16.0	9.3	53.5	4.0	58.5	30.0		
M21692-12-30	19	- 12	3/4”	M 30X2	20.0	12.5	61.5	2.2	67.5	36.0		
M21692-16-36	25	- 16	1”	M 36X2	25.0	15.0	79.5	1.7	86.0	41.0		
M21692-24-52	38	- 24	1.1/2”	M 52X2	38.0	24.7	91.5	8.8	95.5	60.0		
M21693-03-14	5	- 3	3/16”	M 14X1.5	6.0	3.0	26.0	3.5	30.0	17.0		
M21693-03-16	5	- 3	3/16”	M 16X1.5	8.0	3.0	26.0	3.4	29.5	19.0		
M21693-04-14	6	- 4	1/4”	M 14X1.5	6.0	3.0	29.5	1.9	32.5	17.0		
M21693-04-16	6	- 4	1/4”	M 16X1.5	8.0	4.0	29.5	3.4	29.5	19.0		
M21693-04-18	6	- 4	1/4”	M 18X1.5	10.0	4.0	29.5	2.5	31.0	22.0		
M21693-04-20	6	- 4	1/4”	M 20X1.5	12.0	5.5	29.5	2.0	34.5	24.0		
M21693-05-18	8	- 5	5/16”	M 18X1.5	10.0	4.0	32.0	2.5	33.5	22.0		
M21693-05-20	8	- 5	5/16”	M 20X1.5	12.0	5.5	32.0	2.0	34.0	24.0		
M21693-06-20	10	- 6	3/8”	M 20X1.5	12.0	7.0	36.5	2.0	35.0	24.0		
M21693-06-22	10	- 6	3/8”	M 22X1.5	14.0	7.0	36.5	3.0	37.0	27.0		
M21693-06-24	10	- 6	3/8”	M 24X1.5	16.0	9.3	36.5	4.0	36.0	30.0		
M21693-08-24	12	- 8	1/2”	M 24X1.5	16.0	9.3	45.0	4.0	40.5	30.0		
M21693-08-30	12	- 8	1/2”	M 30X2	20.0	12.5	45.0	3.5	44.5	36.0		
M21693-10-30	16	- 10	5/8”	M 30X2	20.0	12.5	51.5	3.5	57.5	36.0		
M21693-12-36	19	- 12	3/4”	M 36X2	25.0	15.0	61.5	4.5	64.5	41.0		
M21693-16-42	25	- 16	1”	M 42X2	30.0	19.8	79.0	6.3	74.5	50.0		
M21693-20-52	31	- 20	1.1/4”	M 52X2	38.0	26.0	93.5	8.0	85.5	60.0		

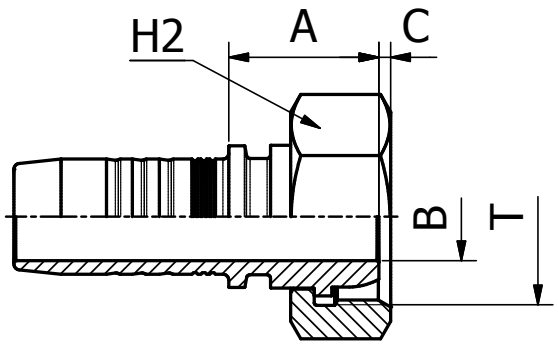


NF STANDARD CONNECTIONS

M11710

FRENCH METRIC MALE
24° CONE SEAT MILLIMETRIC TYPE

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	H1			
M11710-10-2718	16	- 10	5/8”	M 27X1.5	18.0	12.5	28.5	14.0	28.0			
M11710-10-2720	16	- 10	5/8”	M 27X1.5	20.0	12.5	28.5	14.0	28.0			
M11710-12-30	19	- 12	3/4”	M 30X1.5	22.0	15.0	30.0	14.0	30.0			
M11710-12-33	19	- 12	3/4”	M 33X1.5	25.0	15.0	31.0	14.0	34.0			

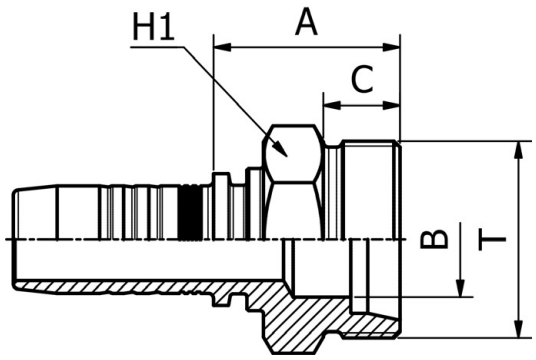


NF STANDARD CONNECTIONS

M21713

FRENCH METRIC FEMALE MILLIMETRIC TYPE (SLIP-ON NUT)

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	H2			
M21713-10-2718	16	-10	5/8"	M 27X1.5	18	12.5	21.5	5.0	32.0			
M21713-10-2720	16	-10	5/8"	M 27X1.5	20	12.5	21.5	5.0	32.0			
M21713-12-30	19	-12	3/4"	M 30X1.5	22	15.0	25.5	2.0	36.0			
M21713-12-33	19	-12	3/4"	M 33X1.5	25	15.0	25.5	2.0	38.0			
M21713-16-36	25	-16	1"	M 36X1.5	28	19.8	28.0	4.7	41.0			
M21713-16-39	25	-16	1"	M 39X1.5	30	19.8	28.5	4.2	46.0			

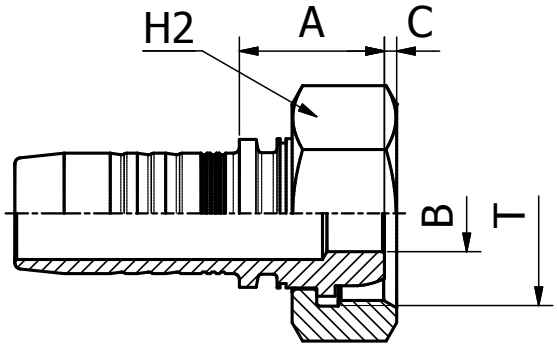


NF STANDARD CONNECTIONS

M11810

FRENCH METRIC MALE 24° CONE SEAT GAZ TYPE

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	H1			
M11810-05-20	8	- 5	5/16”	M 20X1.5	13.25	8.0	27.0	12.0	22.0			
M11810-06-20	10	- 6	3/8”	M 20X1.5	13.25	8.0	27.5	12.0	22.0			
M11810-06-24	10	- 6	3/8”	M 24X1.5	16.75	12.0	28.0	12.0	24.0			
M11810-08-24	12	- 8	1/2”	M 24X1.5	16.75	12.0	28.5	12.0	24.0			
M11810-10-30	16	- 10	5/8”	M 30X1.5	21.25	15.0	31.5	14.0	30.0			
M11810-12-36	19	- 12	3/4”	M 36X1.5	26.75	21.0	34.0	14.0	36.0			
M11810-16-45	25	- 16	1”	M 45X1.5	33.5	26.0	39.5	16.0	46.0			

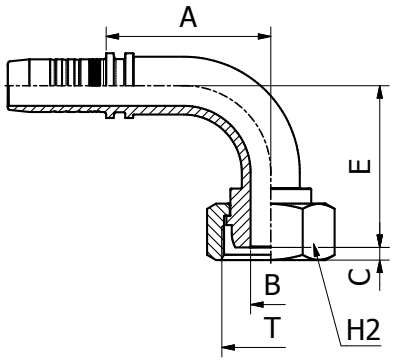


NF STANDARD CONNECTIONS

M21813

FRENCH METRIC FEMALE GAZ TYPE (SLIP-ON NUT)

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	H2			
M21813-04-20	6	-4	1/4"	M 20X1.5	13.25	7.0	22.0	4.0	24.0			
M21813-05-20	8	-5	5/16"	M 20X1.5	13.25	7.0	22.0	4.0	24.0			
M21813-06-20	10	-6	3/8"	M 20X1.5	13.25	7.0	22.5	4.0	24.0			
M21813-06-24	10	-6	3/8"	M 24X1.5	16.75	9.3	25.5	3.5	30.0			
M21813-08-24	12	-8	1/2"	M 24X1.5	16.75	9.3	26.0	3.5	30.0			
M21813-08-30	12	-8	1/2"	M 30X1.5	21.25	12.5	23.5	2.0	36.0			
M21813-10-30	16	-10	5/8"	M 30X1.5	21.25	12.5	23.5	2.0	36.0			
M21813-12-36	19	-12	3/4"	M 36X1.5	26.75	15.0	27.0	4.7	41.0			
M21813-16-45	25	-16	1"	M 45X1.5	33.5	19.8	27.0	4.5	50.0			

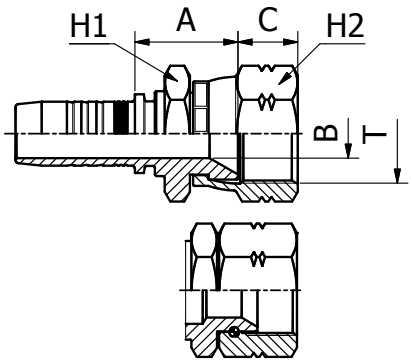


NF STANDARD CONNECTIONS

M21893

90° FRENCH METRIC FEMALE GAZ TYPE (SLIP-ON NUT)

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	E	H2		
M21893-05-20	8	-5	5/16"	M 20X1.5	13.25	7.0	32.0	4.0	29.5	24.0		
M21893-06-20	10	-6	3/8"	M 20X1.5	13.25	7.0	36.5	4.0	33.5	24.0		
M21893-08-24	12	-8	1/2"	M 24X1.5	16.75	12.0	45.0	3.5	41.0	30.0		
M21893-10-30	16	-10	5/8"	M 30X1.5	21.25	12.5	51.5	2.0	53.5	36.0		
M21893-12-36	19	-12	3/4"	M 36X1.5	26.75	15.0	61.5	4.7	60.0	41.0		

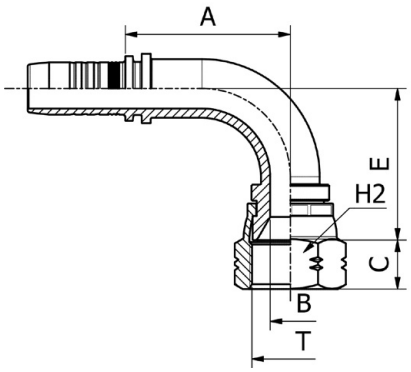


JIS STANDARD CONNECTIONS

M24011/M24012

JIS METRIC FEMALE 60° CONE SEAT (KOMATSU) JIS B 8363

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1	H2		
M24011-04-14	6	- 4	1/4”	M 14X1.5		4.0	23.0	10.5	19.0	19.0		
M24011-04-18	6	- 4	1/4”	M 18X1.5		7.0	22.5	11.5	24.0	24.0		
M24011-05-16	8	- 5	5/16”	M 16X1.5		5.5	22.5	9.3	21.0	21.0		
M24011-06-14	10	- 6	3/8”	M 14X1.5		4.0	23.5	10.5	19.0	19.0		
M24011-06-18	10	- 6	3/8”	M 18X1.5		7.0	23.5	11.5	24.0	24.0		
M24011-08-22	12	- 8	1/2”	M 22X1.5		9.3	25.0	13.0	27.0	27.0		
M24011-10-24	16	- 10	5/8”	M 24X1.5		12.5	26.5	15.1	32.0	32.0		
M24011-12-30	19	- 12	3/4”	M 30X1.5		15.0	31.5	18.3	36.0	36.0		
M24011-16-33	25	- 16	1”	M 33X1.5		19.8	33.5	21.3	41.0	41.0		
M24011-20-36	31	- 20	1.1/4”	M 36X1.5		19.8	41.0	20.0	46.0	46.0		
M24012-24-42	38	- 24	1.1/2”	M 42X1.5		26.0	44.0	18.8	55.0	55.0		

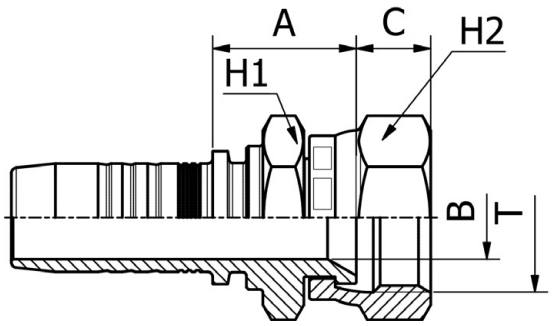


JIS STANDARD CONNECTIONS

M24091

90°JIS METRIC FEMALE 60° CONE SEAT

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M24091-04-14	6	- 4	1/4”	M 14X1.5		4.0	29.0	10.5	28.5	19.0		
M24091-06-18	10	- 6	3/8”	M 18X1.5		7.0	35.5	11.5	34.0	24.0		
M24091-08-22	12	- 8	1/2”	M 22X1.5		9.3	44.0	13.0	40.0	27.0		
M24091-10-24	16	- 10	5/8”	M 24X1.5		12.5	53.5	15.2	47.0	32.0		
M24091-12-30	19	- 12	3/4”	M 30X1.5		15.0	61.5	18.3	56.5	36.0		

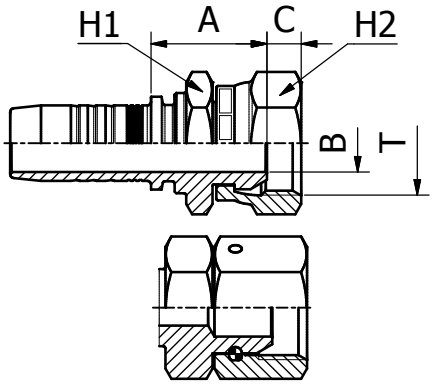


JIS STANDARD CONNECTIONS

M23811

JIS BSP FEMALE 60° CONE SEAT (TOYOTA) - JIS B 8363 (CRIMPED-BACK NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1	H2		
M23811-04-04	6	- 4	1/4"	1/4" - 19		4.0	18.5	8.3	19.0	19.0		
M23811-06-06	10	- 6	3/8"	3/8" - 19		7.0	23.0	10.0	22.0	22.0		
M23811-08-08	12	- 8	1/2"	1/2" - 14		9.3	22.0	11.5	27.0	27.0		
M23811-12-12	19	- 12	3/4"	3/4" - 14		15.0	26.0	13.5	32.0	32.0		
M23811-16-16	25	- 16	1"	1" - 11		19.8	30.5	14.5	38.0	38.0		



JIS STANDARD CONNECTIONS

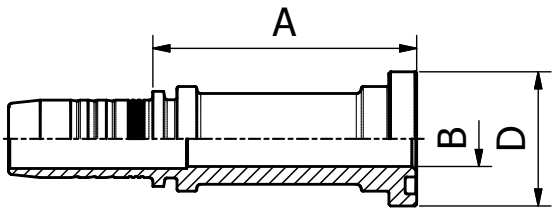
M20711/M20712

JIS BSP FEMALE 60° CONE (NISSAN) - JIS B 8363

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1	H2		
M20711-04-04	6	- 4	1/4"	1/4" - 19		4.0	22.5	4.5	19.0	19.0		
M20711-06-06	10	- 6	3/8"	3/8" - 19		7.0	24.5	6.4	22.0	22.0		
M20711-08-08	12	- 8	1/2"	1/2" - 14		9.3	26.5	6.7	27.0	27.0		
M20711-12-12	19	- 12	3/4"	3/4" - 14		15.0	30.0	8.9	32.0	32.0		
M20712-10-08	16	- 10	5/8"	1/2" - 14		9.3	29.0	6.5	27.0	27.0		
M20712-10-12	16	- 10	5/8"	3/4" - 14		15.0	30.5	9.0	32.0	32.0		
M20712-16-16	25	- 16	1"	1" - 11		19.8	35.5	10.5	38.0	38.0		
M20712-20-20	31	- 20	1.1/4"	1.1/4" - 11		26.0	44.5	12.5	50.0	50.0		

ORIGINAL EQUIPMENT CONNECTIONS

M24111

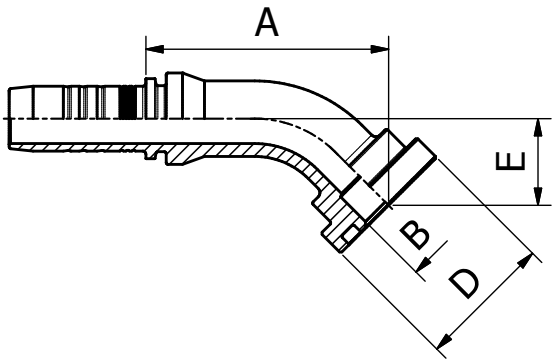


STRAIGHT KOMATSU FLANGE

PART. REF.	HOSE BORE		FLANGE		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D				
M24111-08-10	12	-8	1/2"	5/8"		14.0	66.0	34.0				
M24111-10-10	16	-10	5/8"	5/8"		14.0	65.5	34.0				
M24111-12-10	19	-12	3/4"	5/8"		14.0	66.5	34.0				

ORIGINAL EQUIPMENT CONNECTIONS

M24141

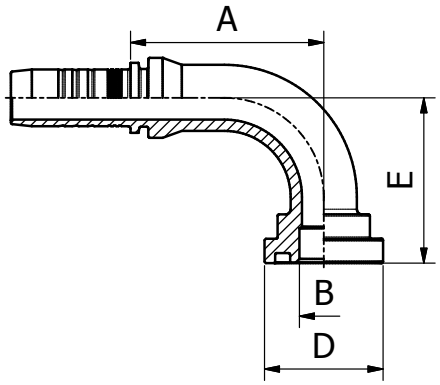


45° KOMATSU FLANGE

PART. REF.	HOSE BORE		FLANGE		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	C	H1	H2		
M24141-10-10	16	-10	5/8"	5/8"		14.0	61.0	34.0	22.0			

ORIGINAL EQUIPMENT CONNECTIONS

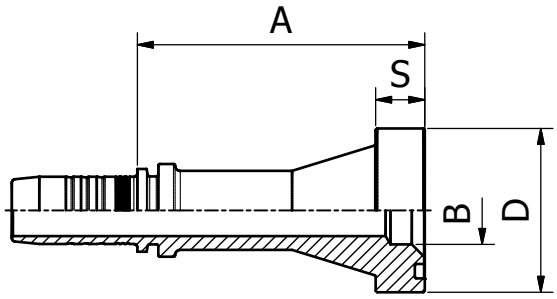
M24191



90° KOMATSU FLANGE

PART. REF.	HOSE BORE		FLANGE		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	C	H1	H2		
M24191-10-10	16	-10	5/8"	5/8"		14.0	56.0	34.0	47.5			
M24191-12-10	19	-12	3/4"	5/8"		14.0	56.0	34.0	47.5			

ORIGINAL EQUIPMENT CONNECTIONS

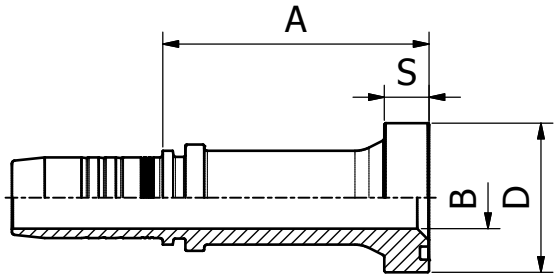


M23911

STRAIGHT SUPERCAT FLANGE

PART. REF.	HOSE BORE			FLANGE		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	S			
M23911-12-12	19	-12	3/4"	3/4"		15.0	74.5	41.5	14.3			
M23911-12-16	19	-12	3/4"	1"		19.8	83.5	47.7	14.3			
M23911-16-16	25	-16	1"	1"		19.8	87.0	47.7	14.3			
M23911-16-20	25	-16	1"	1.1/4"		26.0	92.5	54.0	14.3			
M23911-20-20	31	-20	1.1/4"	1.1/4"		26.0	86.0	54.0	14.3			
M23911-24-24	38	-24	1.1/2"	1.1/2"		32.0	94.0	63.6	14.3			

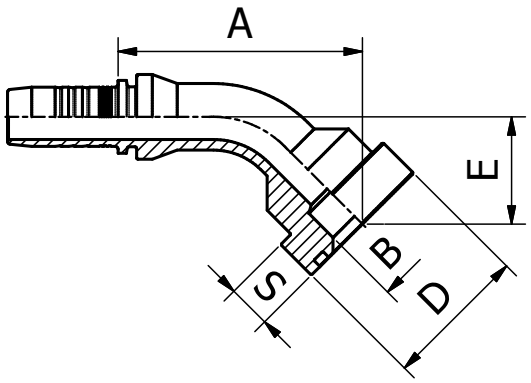
ORIGINAL EQUIPMENT CONNECTIONS



M23911CT

STRAIGHT REALCAT FLANGE

PART. REF.	HOSE BORE			FLANGE		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	S			
M23911-16-16CT	25	-16	1"	1"		19.8	85.0	47.7	14.3			
M23911-20-20CT	31	-20	1.1/4"	1.1/4"		26.0	88.5	54.0	14.3			
M23911-24-24CT	38	-24	1.1/2"	1.1/2"		32.0	93.0	63.6	14.3			

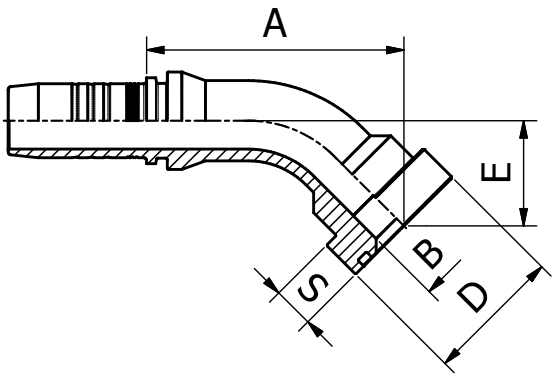


ORIGINAL EQUIPMENT CONNECTIONS

M23941

45° SUPERCAT FLANGE

PART. REF.	HOSE BORE		FLANGE		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	S		
M23941-12-12	19	-12	3/4"	3/4"		15.0	77.0	41.5	32.0	14.3		
M23941-16-16	25	-16	1"	1"		19.8	89.5	47.7	36.5	14.3		
M23941-16-20	25	-16	1"	1"		26.0	92.5	54.0	40.5	14.3		
M23941-20-20	31	-20	1.1/4"	1.1/4"		26.0	99.0	54.0	41.5	14.3		
M23941-24-24	38	-24	1.1/2"	1.1/2"		32.0	119.0	63.6	45.5	14.3		

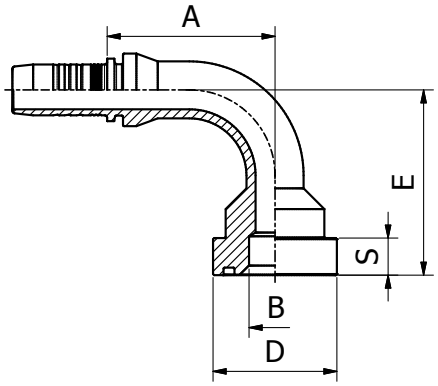


ORIGINAL EQUIPMENT CONNECTIONS

M23941CT

45° REALCAT FLANGE

PART. REF.	HOSE BORE		FLANGE		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	S		
M23941-16-16CT	25	-16	1"	1"		19.8	89.5	47.7	36.5	14.3		
M23941-16-20CT	25	-16	1"	1.1/4"		26.0	93.0	54.0	40.5	14.3		
M23941-20-20CT	31	-20	1.1/4"	1.1/4"		26.0	99.0	54.0	41.5	14.3		
M23941-24-24CT	38	-24	1.1/2"	1.1/2"		32.0	119.0	63.7	45.0	14.3		

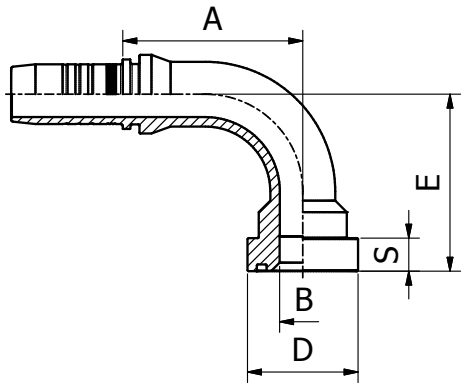


ORIGINAL EQUIPMENT CONNECTIONS

M23991

90° SUPERCAT FLANGE

PART. REF.	HOSE BORE			FLANGE		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	S		
M23991-12-12	19	-12	3/4"	3/4"		15.0	64.5	41.5	64.5	14.3		
M23991-16-16	25	-16	1"	1"		19.8	77.5	47.7	76.5	14.3		
M23991-16-20	25	-16	1"	1.1/4"		26.0	75.5	54.0	80.5	14.3		
M23991-20-20	31	-20	1.1/4"	1.1/4"		26.0	85.5	54.0	87.0	14.3		
M23991-20-24	31	-20	1.1/4"	1.1/2"		32.0	85.5	63.7	93.0	14.3		

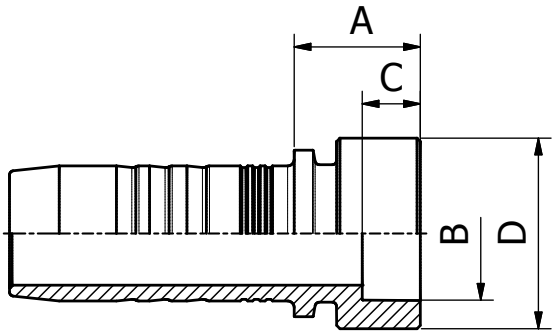


ORIGINAL EQUIPMENT CONNECTIONS

M23991CT

90° REALCAT FLANGE

PART. REF.	HOSE BORE			FLANGE		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	S		
M23991-16-16CT	25	-16	1"	1"		19.8	77.5	47.7	76.5	14.3		
M23991-16-20CT	25	-16	1"	1.1/4"		26.0	75.5	54.0	80.5	14.3		
M23991-20-20CT	31	-20	1.1/4"	1.1/4"		26.0	85.5	54.0	87.0	14.3		
M23991-24-24CT	38	-24	1.1/2"	1.1/2"		32.0	106.0	63.7	96.0	14.3		

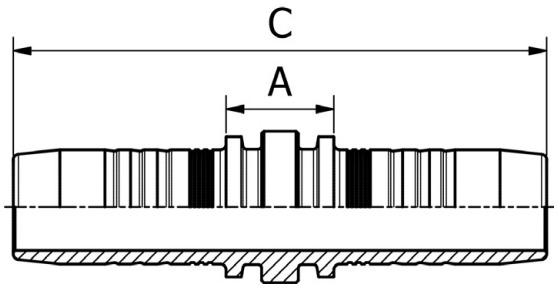


TAIL

M..IP..

WELDING TAIL

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch			B	A	C	D			
M03IP06	5	- 3	3/16”			6.0	11.5	5.0	10.0			
M04IP08	6	- 4	1/4”			8.0	13.0	5.0	12.0			
M05IP10	8	- 5	5/16”			10.0	13.5	6.0	14.0			
M06IP12	10	- 6	3/8”			12.0	13.5	6.0	16.0			
M06IP14	10	- 6	3/8”			14.0	13.5	6.0	18.0			
M08IP15	12	- 8	1/2”			15.0	14.0	6.0	20.0			
M08IP16	12	- 8	1/2”			16.0	14.0	6.0	20.0			
M10IP18	16	- 10	5/8”			18.0	15.0	7.0	23.0			
M12IP22	19	- 12	3/4”			22.0	16.0	7.0	26.0			
M16IP28	25	- 16	1”			28.0	18.5	8.0	34.0			
M20IP35	31	- 20	1.1/4”			35.0	20.5	9.0	40.0			
M24IP40	38	- 24	1.1/2”			40.0	21.5	9.0	50.0			
M32IP50	51	- 32	2”			50.0	23.0	10.0	60.0			
M40IP60	63	- 40	2.1/2”			61.0	19.0	7.0	73.0			
M48IP70	76	- 48	3”			70.0	38.0	10.0	89.0			



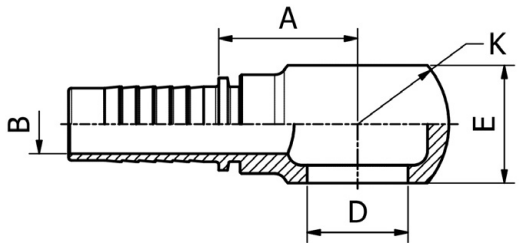
DOUBLE CONNECTOR

M10050

DOUBLE CONNECTOR

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch			B	A	C				
M10050-03-03	5	- 3	3/16”			3.0	15.5	58.2				
M10050-04-04	6	- 4	1/4”			4.0	14.0	69.0				
M10050-05-05	8	- 5	5/16”			5.5	14.0	70.0				
M10050-06-06	10	- 6	3/8”			7.0	14.5	73.5				
M10050-08-08	12	- 8	1/2”			9.3	15.5	77.9				
M10050-10-10	16	- 10	5/8”			12.5	15.5	84.0				
M10050-12-12	19	- 12	3/4”			15.0	18.5	91.5				
M10050-16-16	25	- 16	1”			19.8	22.5	119.0				
M10050-20-20	31	- 20	1.1/4”			26.0	23.0	128.1				
M10050-24-24	38	- 24	1.1/2”			32.0	23.5	147.5				

BANJO CONNECTIONS

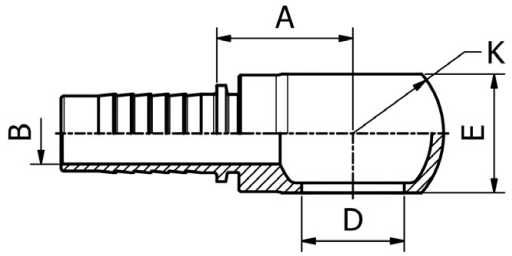


020310

BSP BANJO

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	D	E	K		
O20310-04-04	6	- 4	1/4”	1/4” - 19		4.4	22.0	13.25	15.0	24.0		
O20310-04-06	6	- 4	1/4”	3/8” - 19		4.4	23.5	16.7	18.0	28.0		
O20310-05-04	8	- 5	5/16”	1/4” - 19		5.0	23.0	13.2	14.0	24.0		
O20310-05-06	8	- 5	5/16”	3/8” - 19		5.6	23.0	16.7	20.0	29.0		
O20310-06-06	10	- 6	3/8”	3/8” - 19		7.0	24.5	16.7	20.0	29.0		
O20310-06-08	10	- 6	3/8”	1/2” - 19		7.1	27.0	21.0	25.0	38.0		
O20310-08-08	12	- 8	1/2”	1/2” - 14		9.8	27.5	21.0	25.0	38.0		
O20310-10-10	16	- 10	5/8”	5/8” - 14		12.7	29.5	23.0	27.0	40.0		
O20310-12-12	19	- 12	3/4”	3/4” - 14		15.5	36.5	26.5	31.0	48.0		
O20310-16-16	25	- 16	1”	1” - 11		20.5	40.5	33.3	42.0	60.0		

BANJO CONNECTIONS

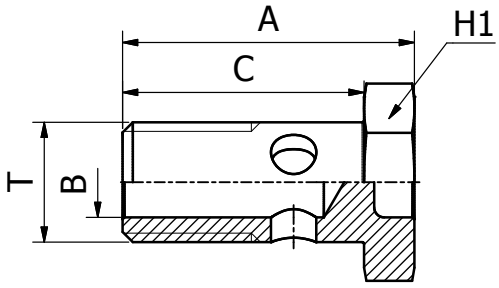


020910

METRIC BANJO DIN 7642

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	D	E	K		
O20910-04-12	6	- 4	1/4”	M 12X1.5		4.4	22.5	12.0	12.0	20.0		
O20910-04-14	6	- 4	1/4”	M 14X1.5		4.4	23.5	14.0	14.0	24.0		
O20910-05-14	8	- 5	5/16”	M 14X1.5		5.6	23.5	14.0	14.0	24.0		
O20910-06-14	10	- 6	3/8”	M 14X1.5		7.1	25.0	14.0	14.0	24.0		
O20910-06-16	10	- 6	3/8”	M 16X1.5		7.1	25.0	16.0	16.0	28.0		
O20910-06-18	10	- 6	3/8”	M 18X1.5		7.1	27.0	18.0	20.0	32.0		
O20910-08-18	12	- 8	1/2”	M 18X1.5		9.8	28.0	18.0	20.0	32.0		
O20910-08-22	12	- 8	1/2”	M 22X1.5		9.8	31.0	22.0	25.0	39.0		
O20910-10-22	16	- 10	5/8”	M 22X1.5		12.7	31.0	22.0	25.0	39.0		
O20910-12-26	19	- 12	3/4”	M 26X1.5		15.5	34.5	26.0	30.0	46.0		

BOLT

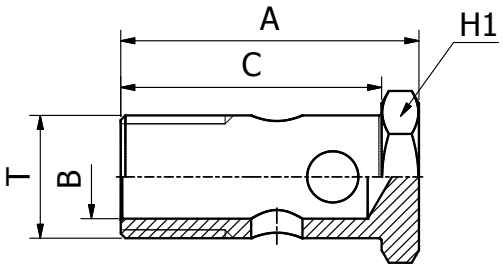


080810

METRIC BOLT - DIN 7643

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1			
O80810-12				M 12X1.5		7.0	29.0	24.0	17.0			
O80810-14				M 14X1.5		9.0	31.0	26.0	19.0			
O80810-16				M 16X1.5		11.0	33.0	28.0	22.0			
O80810-18				M 18X1.5		13.0	37.0	32.0	24.0			
O80810-22				M 22X1.5		16.0	45.0	39.0	27.0			
O80810-26				M 26X1.5		20.0	51.0	45.0	32.0			

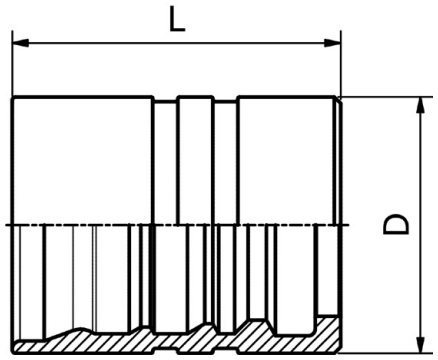
BOLT



080210

BSP BOLT

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1			
O80210-04				1/4” - 19		6.0	34.5	28.5	17.0			
O80210-06				3/8” - 19		9.0	45.5	38.5	22.0			
O80210-08				1/2” - 14		13.0	52.0	44.0	27.0			
O80210-10				5/8” - 14		15.0	56.5	48.5	30.0			
O80210-12				3/4” - 14		18.0	64.0	54.0	32.0			
O80210-16				1” - 11		24.0	77.5	68.5	41.0			

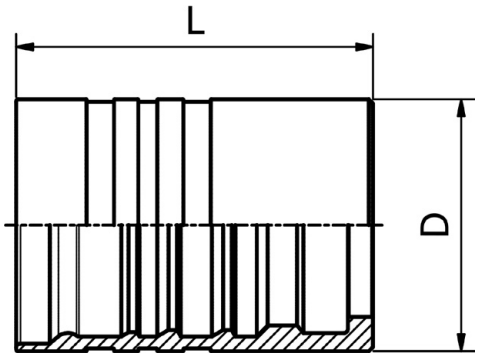


FERRULE

M01500

DOUBLE SKIVE FERRULE FOR HEAVY DUTY SPIRAL HOSES (4 PLY)

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch			D	L					
M01500-10	16	- 10	5/8"			35.0	40.9					
M01500-12	19	- 12	3/4"			40.0	51.4					
M01500-16	25	- 16	1"			48.0	64.5					
M01500-20	31	- 20	1.1/4"			57.0	84.0					
M01500-24	38	- 24	1.1/2"			64.3	94.0					
M01500-32	51	- 32	2"			83.5	107.0					
M01500-40	63	- 40	2.1/2"			100.0	135.0					
M01500-48	76	- 48	3"			107.0	125.0					

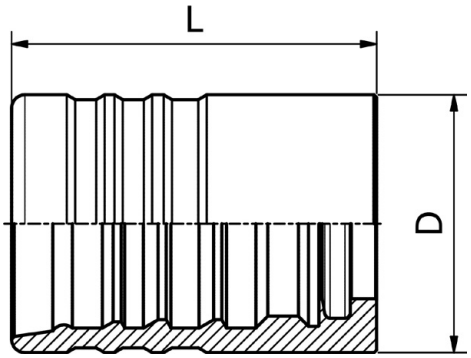


FERRULE

M01600

DOUBLE SKIVE FERRULE FOR HEAVY DUTY SPIRAL HOSES (6 PLY)

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch			D	L					
M01600-20	31	- 20	1.1/4"			60.0	85.0					
M01600-24	38	- 24	1.1/2"			69.0	96.0					

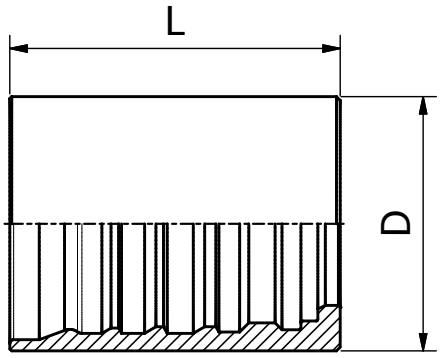


FERRULE

M01800/M01810/M01850

DOUBLE SKIVE FERRULE FOR EXTRA DUTY SPIRAL HOSES (6 PLY)

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch			D	L					
M01850-12	19	-12	3/4”			45.1	51.4					
M01850-16	25	-16	1”			53.5	64.5					
M01850-20	31	- 20	1.1/4"			65.0	88.2					
M01800-32	51	- 32	2"			86.5	108.0					
M01810-40	63	- 40	2.1/2"			103.0	135.0					
M01810-48	76	- 48	3"			113.5	125.0					

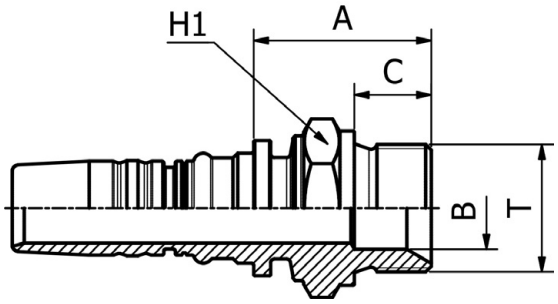


FERRULE

M01900

DOUBLE SKIVE FERRULE

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch			D	L					
M01900-20	31	-20	1.1/4"			68	88,2					
M01900-40	63	-40	2.1/2"			109	135					

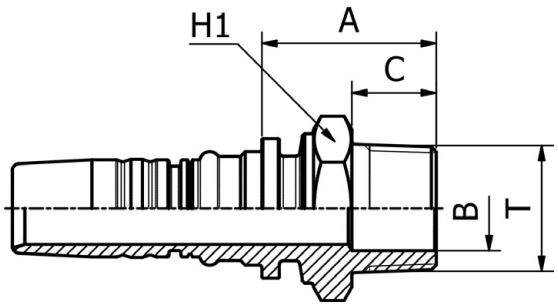


BS STANDARD CONNECTIONS

M30510

BSP MALE
PARALLEL 60° CONE SEAT
BS5200 / ISO 8434-6

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1			
M30510-12-12	19	- 12	3/4"	3/4" - 14		17.0	37.0	16.0	32.0			
M30510-12-16	19	- 12	3/4"	1" - 11		22.5	43.0	19.0	41.0			
M30510-16-16	25	- 16	1"	1" - 11		22.5	43.0	19.0	41.0			
M30510-16-20	25	- 16	1"	1.1/4" - 11		28.5	48.0	20.0	50.0			
M30510-20-20	31	- 20	1.1/4"	1.1/4" - 11		28.5	50.5	20.0	50.0			
M30510-24-24	38	- 24	1.1/2"	1.1/2" - 11		33.5	54.5	22.0	55.0			
M30510-32-32	51	- 32	2"	2" - 11		42.0	58.0	25.0	70.0			

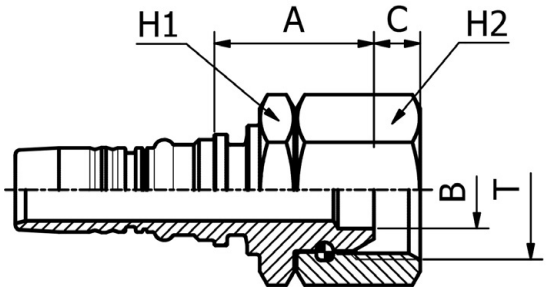


BS STANDARD CONNECTIONS

M30710

BSP
MALE TAPERED)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1			
M30710-12-12	19	- 12	3/4"	3/4" BSPT		17.0	35.0	17.0	32.0			
M30710-16-16	25	- 16	1"	1" BSPT		22.5	41.5	21.0	41.0			
M30710-20-20	31	- 20	1.1/4"	1.1/4" BSPT		28.5	82.0	23.0	46.0			
M30710-24-24	38	- 24	1.1/2"	1.1/2" - 11		33.5	52.0	23.0	55.0			
M30710-32-32	51	- 32	2"	2" - 11		42.0	56.1	27.0	70.0			

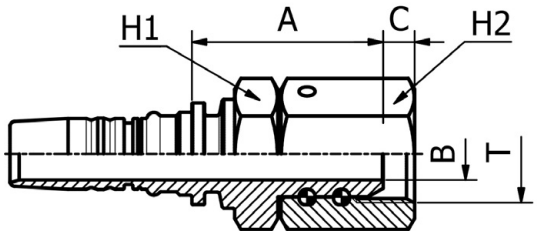


BS STANDARD CONNECTIONS

M40512

BSP
FEMALE 60° CONE
BS5200 / ISO 12151-6
(THRUST-WIRE NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1	H2		
M40512-10-12H32	16	- 10	5/8"	3/4" - 14		15.0	31.0	9.0	32.0	32.0		

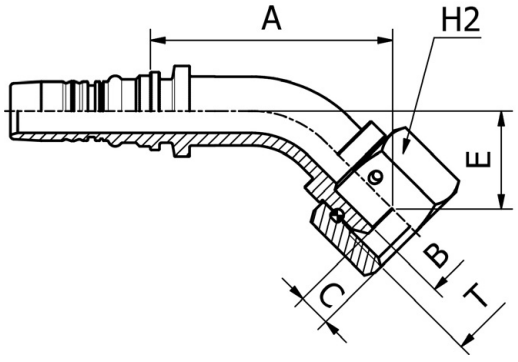


BS STANDARD CONNECTIONS

M40514

BSP
FEMALE 60° CONE
BS5200 / ISO 12151-6
(DOUBLE THRUST-WIRE)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1	H2		
M40514-12-12	19	- 12	3/4"	3/4" - 14		14.5	53.0	8.7	36.0	36.0		
M40514-16-16	25	- 16	1"	1" - 11		18.0	58.0	11.1	41.0	41.0		
M40514-20-20	31	- 20	1.1/4"	1.1/4" - 11		23.0	75.0	10.1	50.0	55.0		
M40514-24-24	38	- 24	1.1/2"	1.1/2" - 11		27.0	76.0	12.5	55.0	60.0		

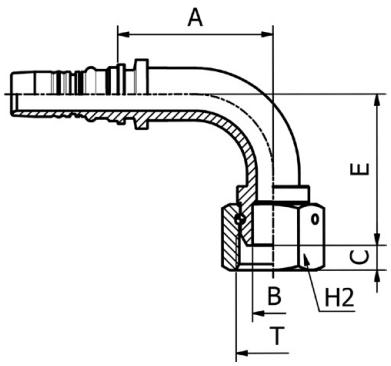


BS STANDARD CONNECTIONS

M40542

45° BSP
FEMALE SWEPT ELBOW 60° CONE
BS5200 / ISO 12151-6
(THRUST-WIRE NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M40542-10-12	16	- 10	5/8"	3/4" - 14		15.0	67.0	9.0	27.0	32.0		

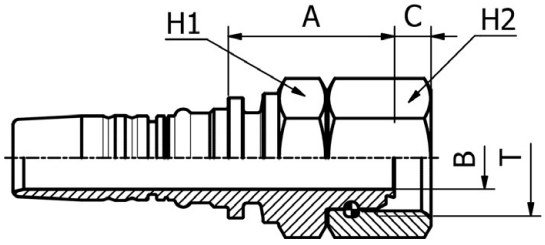


BS STANDARD CONNECTIONS

M40592

90° BSP
FEMALE SWEPT ELBOW 60° CONE
BS5200 / ISO 12151-6
(THRUST-WIRE NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M40592-10-12	16	- 10	5/8"	3/4" - 14		15..0	56.5	9.0	55.0	32.0		

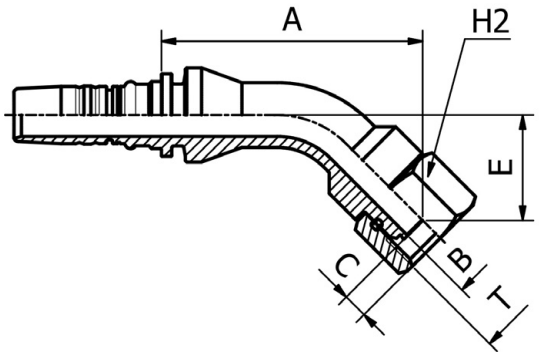


BS STANDARD CONNECTIONS

M40812

BSP O-RING
FEMALE 60° CONE
BS5200 / ISO 12151-6
(THRUST-WIRE NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1	H2		
M40812-12-12	19	- 12	3/4"	3/4" - 14		14.5	39.0	8.5	32.0	32.0		
M40812-12-16	19	- 12	3/4"	1" - 11		19.0	36.5	10.6	32.0	41.0		
M40812-16-12	25	- 16	1"	3/4" - 14		15.0	35.0	8.5	41.0	32.0		
M40812-16-16	25	- 16	1"	1" - 11		19.5	44.5	10.6	41.0	41.0		
M40812-16-20	25	- 16	1"	1.1/4" - 11		26.1	41.0	10.5	41.0	50.0		
M40812-20-16	31	- 20	1.1/4"	1" - 11		19.0	44.5	10.6	50.0	41.0		
M40812-20-20	31	- 20	1.1/4"	1.1/4" - 11		26.1	52.5	10.5	50.0	50.0		
M40812-20-24	31	- 20	1.1/4"	1.1/2" - 11		32.1	46.0	12.5	50.0	60.0		
M40812-24-20	38	- 24	1.1/2"	1.1/4" - 11		26.1	48.5	10.5	60.0	50.0		
M40812-24-24	38	- 24	1.1/2"	1.1/2" - 11		32.1	51.5	12.5	60.0	60.0		
M40812-32-32	51	- 32	2"	2" - 11		42.0	51.5	16.1	70.0	70.0		

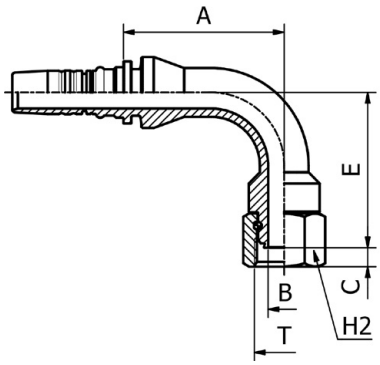


BS STANDARD CONNECTIONS

M40842

45° BSP
O-RING FEMALE SWEPT ELBOW 60° CONE
BS5200 / ISO 12151-6
(THRUST-WIRE NUT)

PART. REF.	HOSE BORE		Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M40842-12-12	19	- 12	3/4"	3/4" - 14		14.5	88.0	8.5	35.0	32.0		
M40842-12-16	19	- 12	3/4"	1" - 11		19.0	89.5	10.6	36.5	41.0		
M40842-16-12	25	- 16	1"	3/4" - 14		15.0	105.5	8.5	36.0	32.0		
M40842-16-16	25	- 16	1"	1" - 11		19.5	97.0	10.6	40.0	41.0		
M40842-16-20	25	- 16	1"	1.1/4" - 11		26.1	108.5	10.5	38.0	50.0		
M40842-20-16	31	- 20	1.1/4"	1" - 11		19.0	118.0	10.6	47.5	41.0		
M40842-20-20	31	- 20	1.1/4"	1.1/4" - 11		26.1	120.0	10.5	49.5	50.0		
M40842-20-24	31	- 20	1.1/4"	1.1/2" - 11		32.1	114.5	12.5	40.0	60.0		
M40842-24-24	38	- 24	1.1/2"	1.1/2" - 11		32.1	126.5	12.5	50.0	60.0		
M40842-32-32	51	- 32	2"	2" - 11		42.0	162.5	16.1	66.5	70.0		



BS STANDARD CONNECTIONS

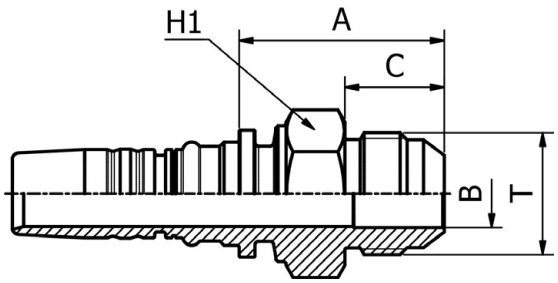
M40892

90° BSP
O-RING FEMALE SWEPT ELBOW 60° CONE
BS5200 / ISO 12151-6
(THRUST-WIRE NUT)

PART. REF.	HOSE BORE		Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M40892-12-12	19	- 12	3/4"	3/4" - 14		14.5	72.5	8.5	70.0	32.0		
M40892-12-16	19	- 12	3/4"	1" - 11		19.0	72.5	10.6	71.0	41.0		
M40892-16-16	25	- 16	1"	1" - 11		19.5	82.0	10.6	80.5	41.0		
M40892-16-20	25	- 16	1"	1.1/4" - 11		26.1	95.0	10.5	78.5	50.0		
M40892-20-20	31	- 20	1.1/4"	1.1/4" - 11		26.1	98.5	10.5	98.0	50.0		
M40892-20-24	31	- 20	1.1/4"	1.1/2" - 11		32.1	98.5	12.5	84.5	60.0		
M40892-24-24	38	- 24	1.1/2"	1.1/2" - 11		32.1	111.5	12.5	109.0	60.0		
M40892-32-32	51	- 32	2"	2" - 11		42.0	143.0	16.1	140.5	70.0		

SAE STANDARD CONNECTIONS

M32510

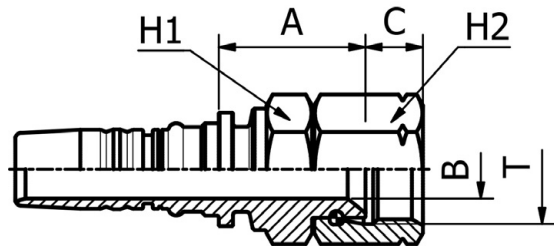


JIC
MALE 37° CONE
SAE J516 / ISO 12151-5

PART. REF.	HOSE BORE		Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1			
M32510-10-10	16	- 10	5/8"	7/8" - 14		12.0	41.0	19.5	27.0			
M32510-12-12	19	- 12	3/4"	1.1/16" - 12		15.0	45.5	22.0	32.0			
M32510-16-16	25	- 16	1"	1.5/16" - 12		20.0	50.5	23.0	38.0			
M32510-16-20	25	- 16	1"	1.5/8" - 12		26.0	57.0	24.3	42.0			
M32510-20-20	31	- 20	1.1/4"	1.5/8" - 12		26.1	66.0	24.3	46.0			
M32510-24-24	38	- 24	1.1/2"	1.7/8" - 12		32.1	64.0	27.5	50.0			
M32510-32-32	51	- 32	2"	2.1/2" - 12		42.0	81.0	34.0	70.0			

SAE STANDARD CONNECTIONS

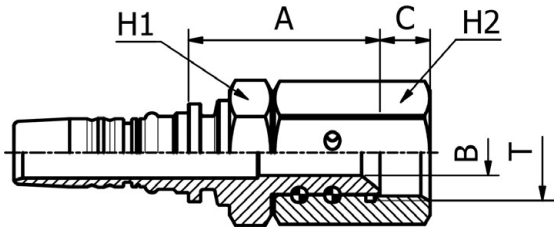
M42512



JIC
FEMALE 37° CONE SEAT
SAE J516 / ISO 12151-5
(THRUST-WIRE NUT)

PART. REF.	HOSE BORE		Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1	H2		
M42512-12-12	19	- 12	3/4"	1.1/16" - 12		15.0	36.0	14.2	32.0	32.0		
M42512-12-16	19	- 12	3/4"	1.5/16" - 12		21.7	32.5	15.2	41.0	41.0		
M42512-16-16	25	- 16	1"	1.5/16" - 12		21.7	40.5	15.2	41.0	41.0		
M42512-16-20	25	- 16	1"	1.5/8" - 12		26.1	44.0	16.2	50.0	50.0		
M42512-20-20	31	- 20	1.1/4"	1.5/8" - 12		26.1	51.5	16.2	50.0	50.0		
M42512-20-24	31	- 20	1.1/4"	1.7/8" - 12		30.5	51.0	18.8	55.0	60.0		
M42512-24-24	38	- 24	1.1/2"	1.7/8" - 12		31.0	54.5	18.8	55.0	60.0		
M42512-32-32	51	- 32	2"	2.1/2" - 12		42.0	54.0	24.0	70.0	75.0		

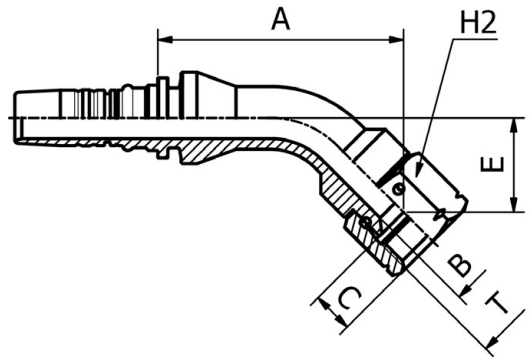
SAE STANDARD CONNECTIONS



M42714

JIC
FEMALE 37° CONE SEAT
SAE J516 / ISO 12151-5
(DOUBLE THRUST-WIRE NUT

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1	H2		
M42714-12-12	19	- 12	3/4"	1.1/16" - 12		13.0	55.0	14.4	36.0	36.0		
M42714-16-16	25	- 16	1"	1.5/16" - 12		18.0	60.5	15.1	41.0	41.0		
M42714-20-20	31	- 20	1.1/4"	1.5/8" - 12		23.0	71.0	15.9	50.0	55.0		
M42714-24-24	38	- 24	1.1/2"	1.7/8" - 12		27.0	71.0	18.6	55.0	60.0		
M42714-32-32	51	- 32	2"	2.1/2" -12		37.0	77.5	23.8	70.0	75.0		

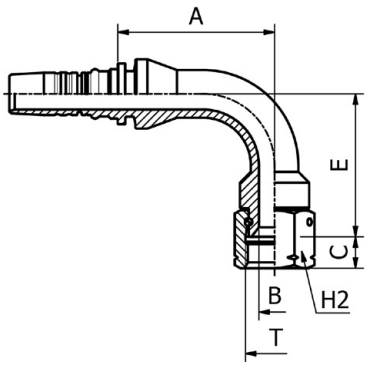


SAE STANDARD CONNECTIONS

M42542

45° JIC
FEMALE SWEPT ELBOW 37° CONE SEAT
SAE J516 / ISO 12151-5
(THRUST-WIRE NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M42542-12-12	19	- 12	3/4"	1.1/16" - 12		15.0	86.0	14.2	33.0	32.0		
M42542-16-16	25	- 16	1"	1.5/16" - 12		21.7	95.0	15.2	37.0	41.0		
M42542-16-20	25	- 16	1"	1.5/8" - 12		26.1	102.5	16.2	36.5	50.0		
M42542-20-20	31	- 20	1.1/4"	1.5/8" - 12		26.1	115.5	16.2	45.0	50.0		
M42542-24-24	38	- 24	1.1/2"	1.7/8" - 12		32.1	126.5	18.8	50.0	60.0		
M42542-32-32	51	- 32	2"	2.1/2" - 12		42.0	161.5	24.0	63.5	75.0		



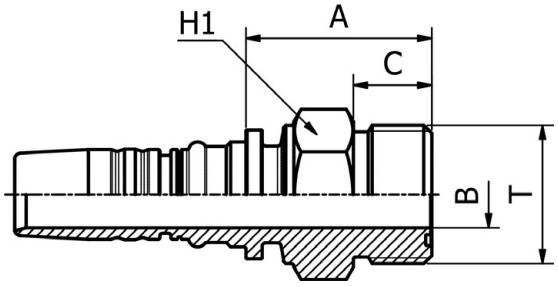
SAE STANDARD CONNECTIONS

M42592

90° JIC
FEMALE SWEPT ELBOW 37° CONE SEAT
SAE J516 / ISO 12151-5
(THRUST-WIRE NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M42592-12-12	19	- 12	3/4"	1.1/16" - 12		15.0	72.5	14.2	66.0	32.0		
M42592-12-16	19	- 12	3/4"	1.5/16" - 12		21.7	72.5	15.2	71.5	41.0		
M42592-16-16	25	- 16	1"	1.5/16" - 12		21.7	82.5	15.2	77.5	41.0		
M42592-16-20	25	- 16	1"	1.5/8" - 12		26.1	90.5	16.2	76.5	50.0		
M42592-20-20	31	- 20	1.1/4"	1.5/8" - 12		26.1	98.5	16.2	92.0	50.0		
M42592-20-24	31	- 20	1.1/4"	1.7/8" - 12		32.1	101.5	18.8	108.0	60.0		
M42592-24-24	38	- 24	1.1/2"	1.7/8" - 12		32.1	111.5	18.8	106.0	60.0		
M42592-32-32	51	- 32	2"	2.1/2" - 12		42.0	144.5	24.0	137.0	75.0		

SAE STANDARD CONNECTIONS

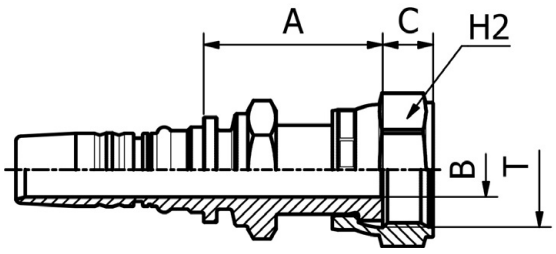


M32410

ORFS
MALE
SAE J516 / ISO 12151-1

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1			
M32410-10-08	16	- 10	5/8"	13/16" - 16		9.3	33.0	12.8	27.0			
M32410-10-10	16	- 10	5/8"	1" - 14		12.0	36.0	15.5	27.0			
M32410-10-12	16	- 10	5/8"	1.3/16" - 12		15.0	39.0	17.0	32.0			
M32410-12-12	19	- 12	3/4"	1.3/16" - 12		14.5	40.5	17.0	32.0			
M32410-12-16	19	- 12	3/4"	1.7/16" - 12		19.8	42.5	17.5	38.0			
M32410-16-16	25	- 16	1"	1.7/16" - 12		19.5	45.0	17.5	41.0			
M32410-16-20	25	- 16	1"	1.11/16" - 12		25.0	48.0	17.5	46.0			
M32410-20-16	31	- 20	1.1/4"	1.7/16" - 12		19.5	47.0	17.5	50.0			
M32410-20-20	31	- 20	1.1/4"	1.11/16" - 12		25.0	50.5	17.5	46.0			
M32410-24-24	38	- 24	1.1/2"	2" - 12		31.0	53.0	17.5	55.0			
M32410-32-24	51	- 32	2"	2" - 12		31.0	53.0	17.5	70.0			

SAE STANDARD CONNECTIONS

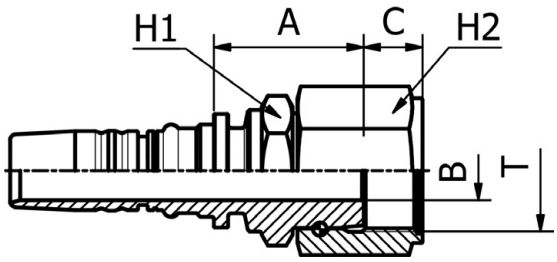


M42411

ORFS
FEMALE
SAE J516 / ISO 12151-1
PULLBACK TYPE (CRIMPED BACK-NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1	H2		
M42411-10-10	16	- 10	5/8"	1" - 14		11.5	40.5	12.5	24.0	30.0		
M42411-12-12	19	- 12	3/4"	1.3/16" - 12		14.5	48.0	13.5	32.0	36.0		
M42411-12-16	19	- 12	3/4"	1.7/16" - 12		19.0	50.0	13.5	36.0	41.0		
M42411-16-12	25	- 16	1"	1.3/16" - 12		14.3	50.0	13.5	41.0	36.0		
M42411-16-16	25	- 16	1"	1.7/16" - 12		19.5	51.5	13.5	41.0	41.0		
M42411-16-20	25	- 16	1"	1.11/16" - 12		26.0	51.5	13.6	41.0	50.0		
M42411-20-20	31	- 20	1.1/4"	1.11/16" - 12		25.0	58.0	13.6	50.0	50.0		
M42411-24-24	38	- 24	1.1/2"	2" - 12		31.0	60.5	14.2	60.0	60.0		

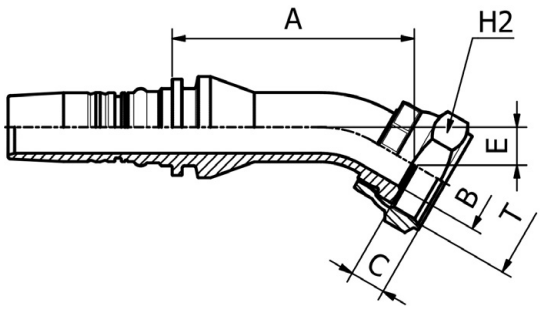
SAE STANDARD CONNECTIONS



M42412

ORFS
FEMALE
SAE J516 / ISO 12151-1
HEAVY TYPE (THRUST-WIRE NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1	H2		
M42412-12-12	19	- 12	3/4"	1.3/16" - 12		14.5	37.0	14.1	32.0	36.0		
M42412-12-16	19	- 12	3/4"	1.7/16" - 12		19.8	41.0	15.0	41.0	46.0		
M42412-16-16	25	- 16	1"	1.7/16" - 12		19.5	42.0	15.0	41.0	46.0		
M42412-16-20	25	- 16	1"	1.11/16" - 12		26.0	50.0	15.1	46.0	55.0		
M42412-20-20	31	- 20	1.1/4"	1.11/16" - 12		25.0	52.0	15.1	50.0	55.0		
M42412-20-24	31	- 20	1.1/4"	2" - 12		31.0	53.0	15.0	55.0	60.0		
M42412-24-24	38	- 24	1.1/2"	2" - 12		31.0	55.0	15.0	60.0	60.0		

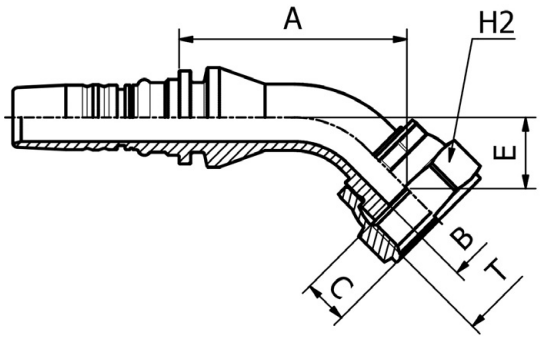


SAE STANDARD CONNECTIONS

M42431

30° ORFS
FEMALE SWEPT ELBOW
SAE J516 / ISO 12151-1
(CRIMPED BACK-NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M42431-16-16	25	- 16	1"	1.7/16", 25.4 MM, 1"		19.5	91.0	10.3	14.0	41.0		

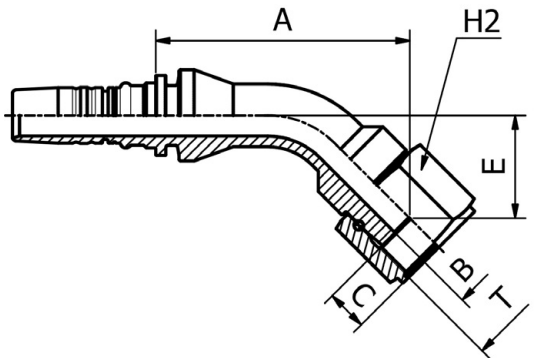


SAE STANDARD CONNECTIONS

M42441

45° ORFS
FEMALE SWEPT ELBOW
SAE J516 / ISO 12151-1
(CRIMPED BACK-NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M42441-10-12	16	- 10	5/8"	1.3/16" - 12		14.3	56.0	13.5	21.5	36.0		
M42441-12-12	19	- 12	3/4"	1.3/16" - 12		14.5	69.0	13.5	21.5	36.0		
M42441-12-16	19	- 12	3/4"	1.7/16" - 12		19.0	77.5	13.5	25.0	41.0		
M42441-16-16	25	- 16	1"	1.7/16" - 12		19.5	86.0	13.5	24.0	41.0		
M42441-20-20	31	- 20	1.1/4"	1.11/16" - 12		25.0	97.0	13.6	27.0	50.0		
M42441-24-24	38	- 24	1.1/2"	2" - 12		31.0	112.0	14.2	31.5	60.0		

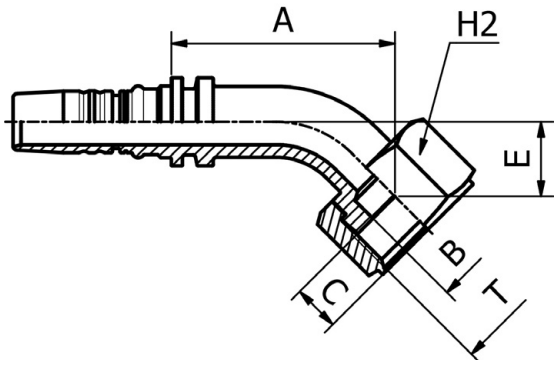


SAE STANDARD CONNECTIONS

M42442

45° ORFS
FEMALE SWEPT ELBOW
SAE J516 / ISO 12151-1
HEAVY TYPE (THRUST-WIRE NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M42442-12-12	19	- 12	3/4"	1.3/16" - 12		14.5	89.0	14.0	36.0	36.0		
M42442-16-16	25	- 16	1"	1.7/16" - 12		19.5	100.0	15.0	42.5	46.0		
M42442-20-20	31	- 20	1.1/4"	1.11/16" - 12		25.0	119.5	15.1	49.5	55.0		
M42442-24-24	38	- 24	1.1/2"	2" - 12		31.0	128.5	15.0	52.0	60.0		

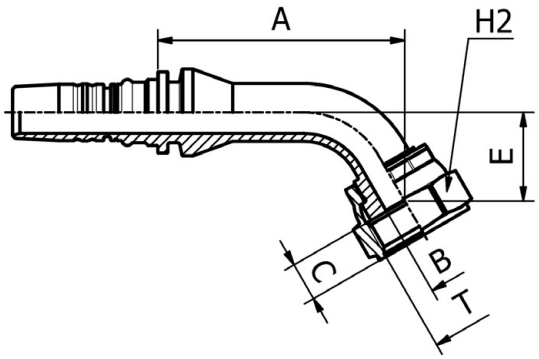


SAE STANDARD CONNECTIONS

M42443

45° ORFS
FEMALE SWEPT ELBOW
SAE J516 / ISO 12151-1
(SLIP-ON NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M42443-12-16	19	- 12	3/4"	1.7/16" - 12		19.8	71.0	14.8	23.5	41.0		
M42443-16-20	25	- 16	1"	1.11/16" - 12		26.0	81.0	14.8	24.0	50.0		
M42443-20-24	31	- 20	1.1/4"	2" - 12		32.0	99.0	14.8	29.0	60.0		

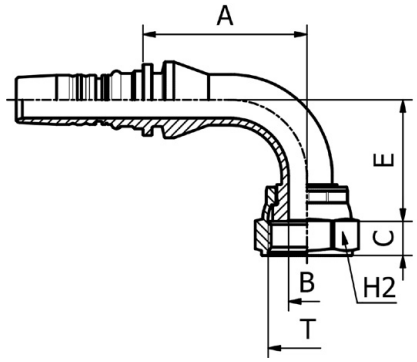


SAE STANDARD CONNECTIONS

M42461

60° ORFS
FEMALE SWEPT ELBOW
SAE J516 / ISO 12151-1
(CRIMPED BACK-NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M42461-12-12	19	- 12	3/4"	1.3/16" - 12		14.5	85.5	13.5	30.5	36.0		

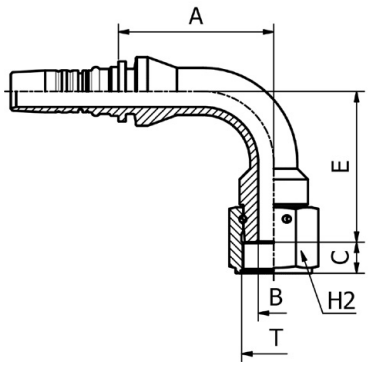


SAE STANDARD CONNECTIONS

M42491

90° ORFS
FEMALE SWEPT ELBOW
SAE J516 / ISO 12151-1
(CRIMPED BACK-NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M42491-10-12	16	- 10	5/8"	1.3/16" - 12		14.3	51.0	13.5	47.0	36.0		
M42491-12-12	19	- 12	3/4"	1.3/16" - 12		14.5	65.0	13.5	48.0	36.0		
M42491-12-12109	19	- 12	3/4"	1.3/16" - 12		14.5	65.0	13.5	109.0	36.0		
M42491-12-16	19	- 12	3/4"	1.7/16" - 12		19.0	70.0	13.5	53.0	41.0		
M42491-16-16	25	- 16	1"	1.7/16" - 12		19.5	85.0	13.5	57.0	41.0		
M42491-16-16128	25	- 16	1"	1.7/16" - 12		19.5	85.0	13.5	128.0	41.0		
M42491-16-20	25	- 16	1"	1.11/16" - 12		24.0	84.5	13.6	61.0	50.0		
M42491-20-20	31	- 20	1.1/4"	1.11/16" - 12		25.0	98.5	13.6	66.0	50.0		
M42491-24-24	38	- 24	1.1/2"	2" - 12		31.0	116.0	14.2	79.5	60.0		

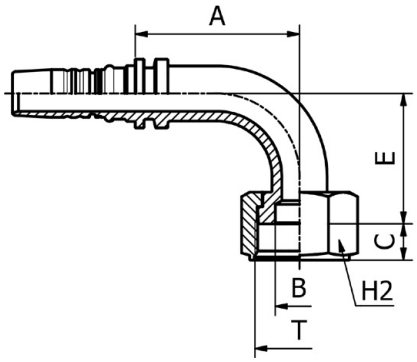


SAE STANDARD CONNECTIONS

M42492

90° ORFS
FEMALE SWEPT ELBOW
SAE J516 / ISO 12151-1
HEAVY TYPE (THRUST-WIRE-NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M42492-12-12	19	- 12	3/4"	1.3/16" - 12		14.5	72.5	14.1	70.5	36.0		
M42492-16-16	25	- 16	1"	1.7/16" - 12		19.5	82.5	15.0	84.5	46.0		
M42492-20-20	31	- 20	1.1/4"	1.11/16" - 12		25.0	98.5	15.1	98.0	55.0		
M42492-24-24	38	- 24	1.1/2"	2" - 12		31.0	111.5	15.0	109.0	60.0		

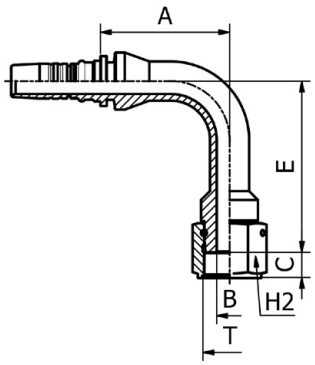


SAE STANDARD CONNECTIONS

M42493

90° ORFS FEMALE SWEPT ELBOW
SAE J516 / ISO 12151-1
(SLIP-ON NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M42493-12-16	19	- 12	3/4"	1.7/16" - 12		19.8	67.0	14.8	53.0	41.0		
M42493-16-20	25	- 16	1"	1.11/16" - 12		26.0	81.5	14.8	58.5	50.0		
M42493-20-24	31	- 20	1.1/4"	2" - 12		32.0	100.0	14.8	70.5	60.0		



SAE STANDARD CONNECTIONS

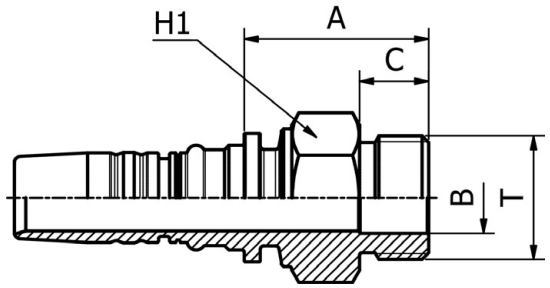
M44492 LONG DROP

90° ORFS
FEMALE LONG DROP ELBOW
SAE J516 / ISO 12151-1
(THRUST-WIRE NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M44492-12-12	19	- 12	3/4"	1.3/16" - 12		14.5	72.5	14.1	96.0	36.0		
M44492-20-20	31	- 20	1.1/4"	1.11/16" - 12		25.0	98.5	15.1	129.0	55.0		

SAE STANDARD CONNECTIONS

M33010

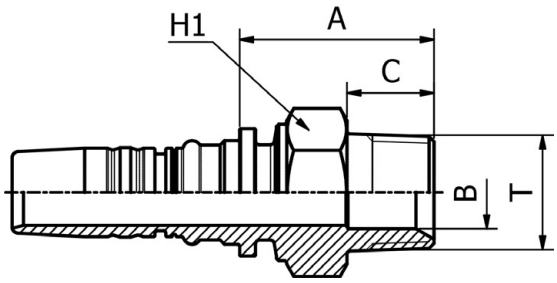


SAE
MALE O-RING BOSS TYPE
SAE J516 / ISO 11926

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1			
M33010-12-12	19	- 12	3/4"	1.1/16" - 12		15.5	42.0	15.1	32.0			
M33010-16-16	25	- 16	1"	1.5/16" - 12		21.5	43.5	15.1	38.0			
M33010-20-20	31	- 20	1.1/4"	1.5/8" - 12		27.5	47.5	15.1	46.0			

SAE STANDARD CONNECTIONS

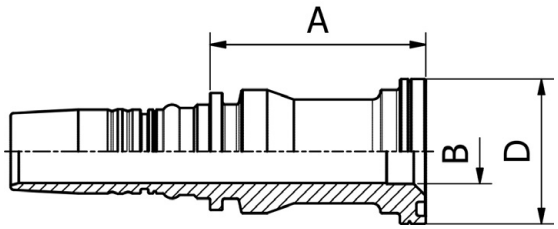
M32810



NPTF
MALE 60° CONE SEAT
SAE J516/J514

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1			
M32810-10-12	16	- 10	5/8"	3/4" - 14		16.0	40.7	19.2	27.0			
M32810-12-12	19	- 12	3/4"	3/4" - 14		16.0	42.9	19.2	32.0			
M32810-16-16	25	- 16	1"	1" - 11,5		19.5	50.5	24.2	38.0			
M32810-20-20	31	- 20	1.1/4"	1.1/4" - 11,5		26.1	61.0	25.0	46.0			
M32810-24-24	38	- 24	1.1/2"	1.1/2" - 11,5		32.1	62.5	26.0	50.0			
M32810-24-32	38	- 24	1.1/2"	2" - 11,5		42.0	67.0	26.5	70.0			
M32810-32-32	51	- 32	2"	2" - 11,5		42.0	67.0	26.5	70.0			
M32810-40-40	63	- 40	2.1/2"	2.1/2" - 8		51.5	94.5	43.0	80.0			
M32810-48-48	76	- 48	3"	3" - 8		62.5	123.5	51.5	100.0			

SAE STANDARD CONNECTIONS

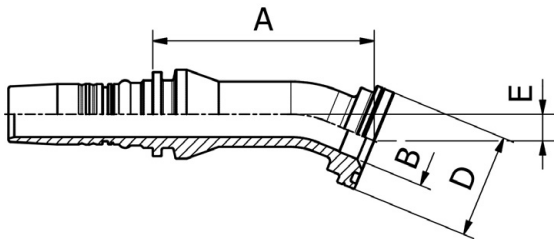


M43310

ISO / SAE
CODE 61 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D				
M43310-10-16	16	- 10	5/8"	1"		20.0	64.0	44.6				
M43310-12-12	19	- 12	3/4"	3/4"		16.0	60.0	38.0				
M43310-12-16	19	- 12	3/4"	1"		20.0	65.5	44.6				
M43310-16-12	25	- 16	1"	3/4"		16.0	67.0	38.0				
M43310-16-16	25	- 16	1"	1"		20.0	66.5	44.6				
M43310-16-20	25	- 16	1"	1.1/4"		26.1	73.0	51.0				
M43310-20-20	31	- 20	1.1/4"	1.1/4"		26.1	75.0	51.0				
M43310-20-24	31	- 20	1.1/4"	1.1/2"		32.1	80.0	60.5				
M43310-24-24	38	- 24	1.1/2"	1.1/2"		32.1	80.5	60.5				
M43310-24-32	38	- 24	1.1/2"	2"		42.0	88.5	71.6				
M43310-32-24	38	- 24	1.1/2"	2"		32.1	104.0	60.5				
M43310-32-32	51	- 32	2"	2"		42.0	82.5	71.6				
M43310-40-40	63	- 40	2.1/2"	2.1/2"		51.5	92.5	84.3				
M43310-48-48	76	- 48	3"	3"		62.5	101.0	101.6				

SAE STANDARD CONNECTIONS

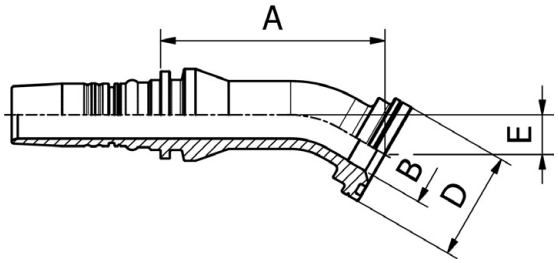


M43320

22,5° ISO / SAE
CODE 61 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M43320-16-16	25	- 16	1"	1"		20.0	94.5	44.6	11.5			

SAE STANDARD CONNECTIONS

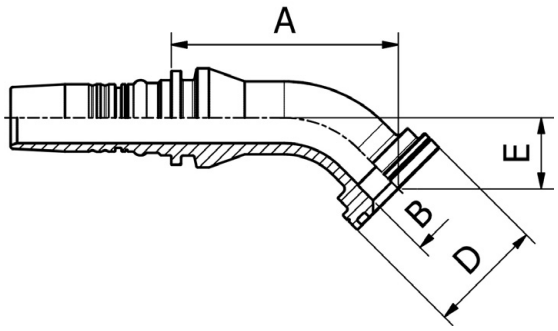


M43330

30° ISO / SAE
CODE 61 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M43330-16-16	25	- 16	1"	1"		20.0	93.0	44.6	16.5			
M43330-20-20	31	- 20	1.1/4"	1.1/4"		26.1	106.5	51.0	17.5			
M43330-24-24	38	- 24	1.1/2"	1.1/2"		32.1	118.0	60.5	20.0			
M43330-32-32	51	- 32	2"	2"		42.0	137.0	71.6	22.0			

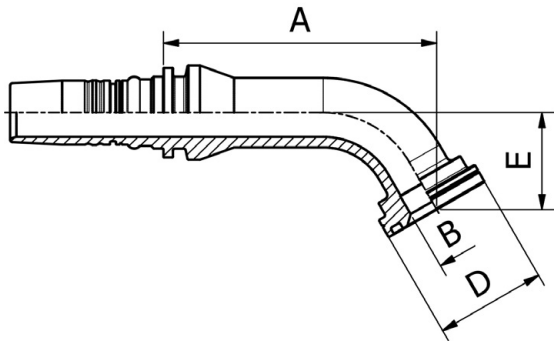
SAE STANDARD CONNECTIONS



M43340

45° ISO / SAE
CODE 61 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M43340-12-12	19	- 12	3/4"	3/4"		16.0	75.5	38.0	26.0			
M43340-12-16	19	- 12	3/4"	1"		20.0	76.0	44.6	23.0			
M43340-16-16	25	- 16	1"	1"		20.0	87.0	44.6	27.5			
M43340-16-16032	25	- 16	1"	1"		20.0	92.0	44.5	32.0			
M43340-16-20	25	- 16	1"	1.1/4"		26.0	87.5	51.0	27.5			
M43340-20-20	31	- 20	1.1/4"	1.1/4"		26.1	100.5	51.0	29.5			
M43340-20-20038	31	- 20	1.1/4"	1.1/4"		26.1	109.0	50.9	38.0			
M43340-20-24	31	- 20	1.1/4"	1.1/2"		32.1	101.5	60.5	31.0			
M43340-24-24	38	- 24	1.1/2"	1.1/2"		32.1	111.0	60.5	34.5			
M43340-24-24044	38	- 24	1.1/2"	1.1/2"		32.1	120.0	60.5	44.0			
M43340-24-32	38	- 24	1.1/2"	2"		42.0	113.0	71.6	34.5			
M43340-32-32	51	- 32	2"	2"		42.0	128.5	71.6	39.0			
M43340-32-32056	51	- 32	2"	2"		42.0	146.0	71.6	56.0			
M43340-48-48	76	- 48	3"	3"		59.0	147.5	101.6	53.0			

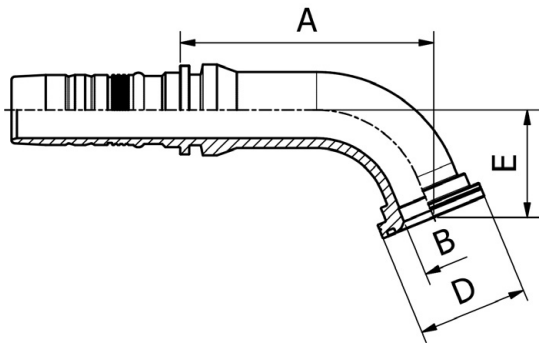


SAE STANDARD CONNECTIONS

M43360

60° ISO / SAE
CODE 61 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M43360-16-16	25	- 16	1"	1"		20.0	110.0	44.6	39.0			
M43360-20-24	31	- 20	1.1/4"	1.1/2"		32.1	219.0	60.6	45.0			
M43360-24-24	38	- 24	1.1/2"	1.1/2"		32.1	147.0	60.5	51.0			
M43360-24-32	38	- 24	1.1/2"	2"		42.0	147.0	71.6	51.0			
M43360-32-32	51	- 32	2"	2"		42.0	175.0	71.6	58.5			

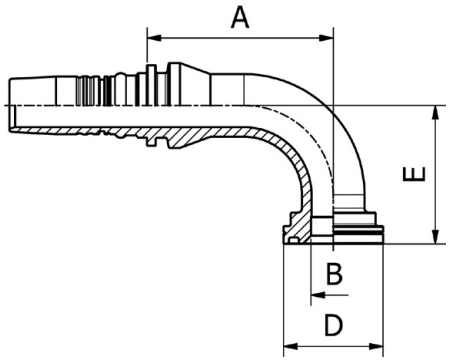


SAE STANDARD CONNECTIONS

M43370

67.5° ISO / SAE
FLANGE 3000 PSI
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M43370-24-24	38	- 24	1.1/2"	1.1/2"		32.1	139.5	60.5	59.0			
M43370-24-32	38	- 24	1.1/2"	2"		42.0	130.0	71.6	59.0			
M43370-32-32	51	- 32	2"	2"		42.0	167.0	71.5	68.5			



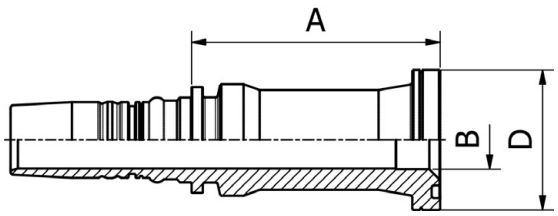
SAE STANDARD CONNECTIONS

M43390

90° ISO / SAE
CODE 61 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M43390-10-16	16	- 10	5/8"	1"		20.0	71.0	44.6	52.0			
M43390-12-12	19	- 12	3/4"	3/4"		16.0	72.0	38.0	52.0			
M43390-12-12058	19	- 12	3/4"	3/4"		16.0	72.0	38.0	58.0			
M43390-12-16	19	- 12	3/4"	1"		20.0	72.5	44.6	52.0			
M43390-16-16	25	- 16	1"	1"		20.0	83.5	44.6	62.0			
M43390-16-16070	25	- 16	1"	1"		20.0	83.5	44.5	70.0			
M43390-16-20	25	- 16	1"	1.1/4"		26.0	83.5	51.0	62.0			
M43390-20-20	31	- 20	1.1/4"	1.1/4"		26.1	99.0	51.0	70.0			
M43390-20-20090	31	- 20	1.1/4"	1.1/4"		26.1	99.0	50.9	90.0			
M43390-20-16	31	- 20	1.1/4"	1"		19.8	96.5	44.6	66.0			
M43390-20-24	31	- 20	1.1/4"	1.1/2"		32.1	98.5	60.5	72.0			
M43390-24-24	38	- 24	1.1/2"	1.1/2"		32.1	111.5	60.5	84.0			
M43390-24-24104	38	- 24	1.1/2"	1.1/2"		32.1	111.5	60.5	104.0			
M43390-24-32	38	- 24	1.1/2"	2"		42.0	111.5	71.6	84.0			
M43390-32-32	51	- 32	2"	2"		42.0	133.5	71.6	99.0			
M43390-32-32138	51	- 32	2"	2"		42.0	133.5	71.5	138.0			
M43390-48-48	76	- 48	3"	3"		59.0	145.0	101.6	140.0			

SAE STANDARD CONNECTIONS

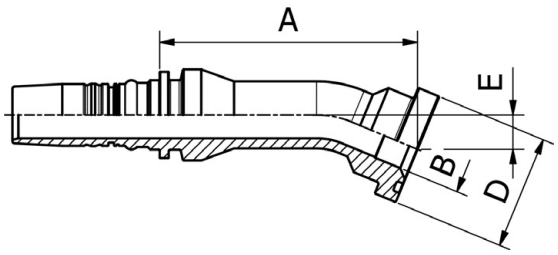


M43610

ISO / SAE
CODE 62 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D				
M43610-10-12	16	- 10	5/8"	3/4"		16.0	65.0	41.5				
M43610-10-16	16	- 10	5/8"	1"		20.0	81.5	47.7				
M43610-12-12	19	- 12	3/4"	3/4"		16.0	71.5	41.4				
M43610-12-16	19	- 12	3/4"	1"		20.0	83.5	47.7				
M43610-16-12	25	- 16	1"	3/4"		16.0	80.5	41.4				
M43610-16-16	25	- 16	1"	1"		20.0	84.5	47.7				
M43610-16-20	25	- 16	1"	1.1/4"		26.0	89.0	54.2				
M43610-20-16	31	- 20	1.1/4"	1"		20.0	87.0	47.7				
M43610-20-20	31	- 20	1.1/4"	1.1/4"		26.1	91.0	54.2				
M43610-20-24	31	- 20	1.1/4"	1.1/2"		32.1	97.0	63.7				
M43610-24-20	38	- 24	1.1/2"	1.1/4"		26.0	101.0	54.2				
M43610-24-24	38	- 24	1.1/2"	1.1/2"		32.1	97.5	63.7				
M43610-24-32	38	- 24	1.1/2"	2"		42.0	113.0	79.6				
M43610-32-24	51	- 32	2"	1.1/2"		32.1	117.0	63.7				
M43610-32-32	51	- 32	2"	2"		42.0	112.5	79.6				
M43610-40-40	63	- 40	2.1/2"	2.1/2"		51.5	126.5	107.9				
M43610-48-48	76	- 48	3"	3"		62.5	167.0	131.9				

SAE STANDARD CONNECTIONS

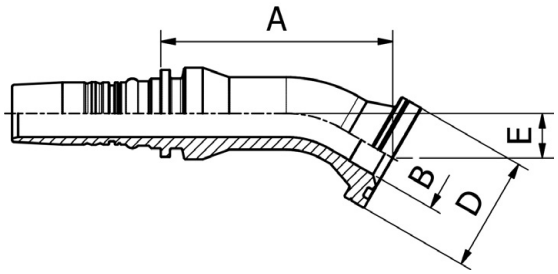


M43620

22.5° ISO / SAE
FLANGE 6000 PSI
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M43620-12-12	19	- 12	3/4"	3/4"		16.0	89.0	41.3	12.5			
M43620-16-16	25	- 16	1"	1"		20.0	100.5	47.7	14.5			
M43620-16-16023	25	- 16	1"	1"		20.0	106.5	47.7	23.0			
M43620-20-20	31	- 20	1.1/4"	1.1/4"		26.0	118.3	54.1	16.5			
M43620-20-20030	31	- 20	1.1/4"	1.1/4"		26.0	132.5	54.2	30.0			
M43620-24-24	38	- 24	1.1/2"	1.1/2"		32.0	136.5	63.7	19.0			
M43620-32-32	51	- 32	2"	2"		42.0	171.0	79.6	26.0			

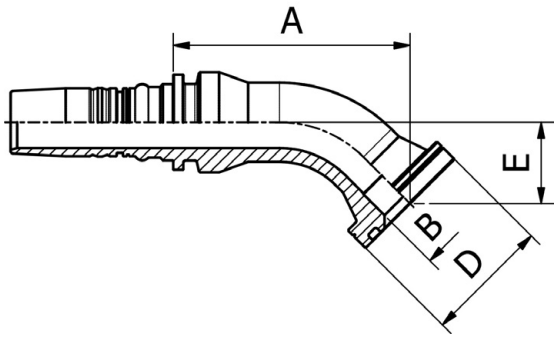
SAE STANDARD CONNECTIONS



M43630

30° ISO / SAE
CODE 62 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M43630-12-12	19	- 12	3/4"	3/4”		16.0	87.0	41.4	17.5			
M43630-16-12	25	- 16	1"	3/4”		16.0	93.0	41.4	17.0			
M43630-16-16	25	- 16	1"	1”		20.0	96.0	47.7	18.5			
M43630-20-20	31	- 20	1.1/4"	1.1/4”		26.0	116.0	54.2	22.5			
M43630-24-24	38	- 24	1.1/2"	1.1/2”		32.1	128.7	63.7	28.0			
M43630-32-32	51	- 32	2"	2”		42.0	164.0	79.6	35.5			

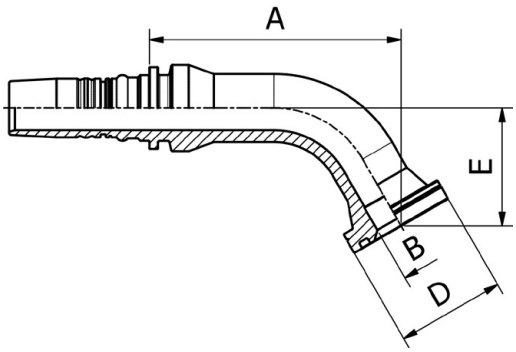


SAE STANDARD CONNECTIONS

M43640

45° ISO / SAE
CODE 62 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M43640-10-12	16	- 10	5/8"	3/4"		16.0	71.0	41.4	31.0			
M43640-10-16	16	- 10	5/8"	1"		20.0	83.5	47.7	32.5			
M43640-12-12	19	- 12	3/4"	3/4"		16.0	79.0	41.4	26.0			
M43640-12-16	19	- 12	3/4"	1"		20.0	85.5	47.7	32.5			
M43640-16-12	25	- 16	1"	3/4"		16.0	87.0	41.4	28.0			
M43640-16-16	25	- 16	1"	1"		20.0	90.0	47.7	31.0			
M43640-16-20	25	- 16	1"	1.1/4"		26.0	93.0	54.2	34.5			
M43640-20-16	31	- 20	1.1/4"	1"		25.0	106.5	47.7	33.5			
M43640-20-20	31	- 20	1.1/4"	1.1/4"		26.0	108.0	54.2	37.5			
M43640-20-24	31	- 20	1.1/4"	1.1/2"		32.1	116.0	63.7	42.5			
M43640-24-20	38	- 24	1.1/2"	1.1/4"		26.0	115.0	54.2	41.5			
M43640-24-24	38	- 24	1.1/2"	1.1/2"		32.0	125.0	63.7	44.0			
M43640-24-32	38	- 24	1.1/2"	2"		42.0	134.0	79.6	55.5			
M43640-32-32	51	- 32	2"	2"		42.0	152.0	79.6	58.5			
M43640-32-32056	51	- 32	2"	2"		42.0	149.5	79.6	56.0			

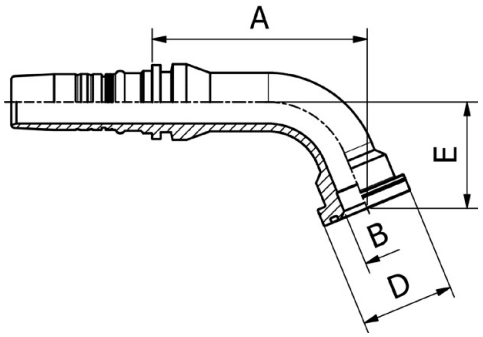


SAE STANDARD CONNECTIONS

M43660

60° ISO / SAE
CODE 62 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M43660-12-12	19	- 12	3/4"	3/4”		16.0	98.5	41.4	39.0			
M43660-12-16	19	- 12	3/4"	1”		20.0	101.0	47.7	44.0			
M43660-16-16	25	- 16	1"	1”		20.0	111.0	47.7	52.0			
M43660-20-20	31	- 20	1.1/4"	1.1/4”		26.1	133.0	54.2	58.0			
M43660-20-24	31	- 20	1.1/4"	1.1/2”		32.1	137.0	63.7	65.0			
M43660-24-24	38	- 24	1.1/2"	1.1/2”		32.0	155.0	63.7	59.0			
M43660-32-32	51	- 32	2"	2”		42.0	199.5	79.6	83.5			

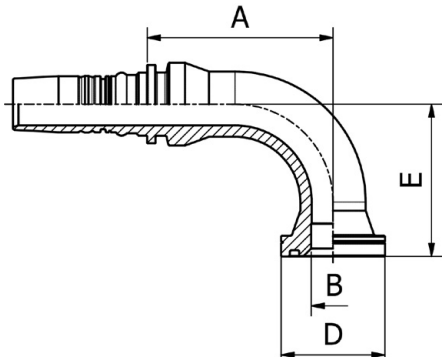


SAE STANDARD CONNECTIONS

M43670

67.5° ISO / SAE
CODE 62 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE		Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M43670-16-20	25	- 16	1"	1.1/4"		26.0	105.0	54.1	58.5			
M43670-20-16T34	31	- 20	1.1/4"	1"		26.0	125.3	47.7	58.2			
M43670-20-20	31	- 20	1.1/4"	1.1/4"		26.1	125.5	54.2	62.0			
M43670-24-16	38	- 24	1.1/2"	1"		19.0	125.5	47.7	51.0			
M43670-24-20	38	- 24	1.1/2"	1.1/4"		26.0	142.5	54.1	54.1			
M43670-24-20T40	38	- 24	1.1/2"	1.1/4"		31.0	145.0	54.2	71.0			

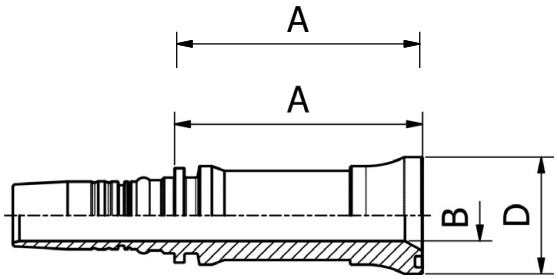


SAE STANDARD CONNECTIONS

M43690

90° ISO / SAE
CODE 62 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE		Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M43690-10-12	16	- 10	5/8"	3/4"		16.0	56.5	41.4	60.5			
M43690-12-12	19	- 12	3/4"	3/4"		16.0	72.5	41.4	59.0			
M43690-12-16	19	- 12	3/4"	1"		20.0	72.5	47.7	65.0			
M43690-16-12	25	- 16	1"	3/4"		16.0	81.5	41.4	62.0			
M43690-16-16	25	- 16	1"	1"		20.0	85.5	47.7	70.0			
M43690-16-20	25	- 16	1"	1.1/4"		26.0	85.0	54.2	75.0			
M43690-20-16	31	- 20	1.1/4"	1"		25.0	105.0	47.7	79.0			
M43690-20-20	31	- 20	1.1/4"	1.1/4"		26.1	102.0	54.2	82.0			
M43690-20-20090	31	- 20	1.1/4"	1.1/4"		26.0	102.0	54.2	90.0			
M43690-20-24	31	- 20	1.1/4"	1.1/2"		32.1	105.0	63.7	92.0			
M43690-24-20	38	- 24	1.1/2"	1.1/4"		26.0	110.0	54.2	90.0			
M43690-24-24	38	- 24	1.1/2"	1.1/2"		32.1	114.5	63.7	96.0			
M43690-24-24104	38	- 24	1.1/2"	1.1/2"		32.1	114.5	63.7	104.0			
M43690-24-32	38	- 24	1.1/2"	2"		42.0	114.5	79.6	109.0			
M43690-32-32	51	- 32	2"	2"		42.0	142.5	79.6	132.0			
M43690-32-32138	51	- 32	2"	2"		42.0	140.5	79.6	142.5			

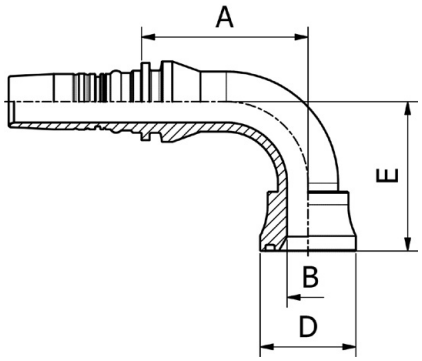


XTRAFLANGE

M48410

XTRAFLANGE/61
(ISO 6162-1/SAE J518 CODE 61 PORT COMPATIBLE)

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D				
M48410-16-16	25	- 16	1"	1"		19.5	94.5	44.5				
M48410-20-20	31	- 20	1.1/4"	1.1/4"		25.0	103.5	50.5				
M48410-24-24	38	- 24	1.1/2"	1.1/2"		31.0	116.0	60.5				
M48410-32-32	51	- 32	2"	2"		41.0	101.0	71.6				
M48410-40-40	63	- 40	2.1/2"	2.1/2"		51.5	103.0	84.4				



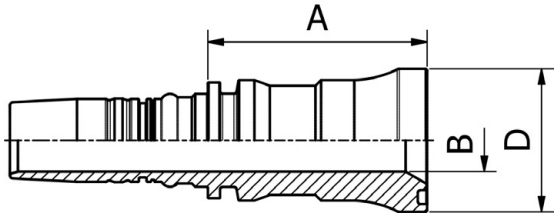
XTRAFLANGE

M48490

90° XTRAFLANGE/61
(ISO 6162-1/SAE J518 CODE 61 PORT COMPATIBLE)

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M48490-16-16	25	- 16	1"	1"		19.5	77.5	44.5	69.5			
M48490-20-20	31	- 20	1.1/4"	1.1/4"		25.0	107.0	50.5	90.0			
M48490-24-24	38	- 24	1.1/2"	1.1/2"		31.0	112.0	60.5	104.0			
M48490-32-32	51	- 32	2"	2"		41.0	145.0	71.6	138.0			

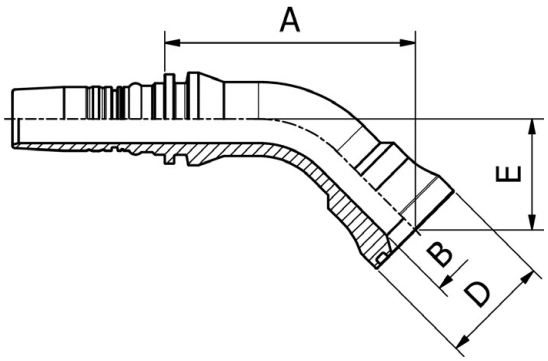
XTRAFLANGE



M48510

XTRAFLANGE/62
(SAE J518 CODE 62 - ISO 6162-2 PORT COMPATIBLE)

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D				
M48510-12-12	19	- 12	3/4"	3/4"		14.5	64.0	41.4				
M48510-16-16	25	- 16	1"	1"		19.5	68.5	47.7				
M48510-20-20	31	- 20	1.1/4"	1.1/4"		25.0	88.0	54.4				
M48510-24-24	38	- 24	1.1/2"	1.1/2"		31.0	102.0	63.7				
M48510-32-32	51	- 32	2"	2"		41.0	128.5	79.6				
M48510-40-40	63	- 40	2.1/2"	2.1/2"		51.5	148.5	99.2				

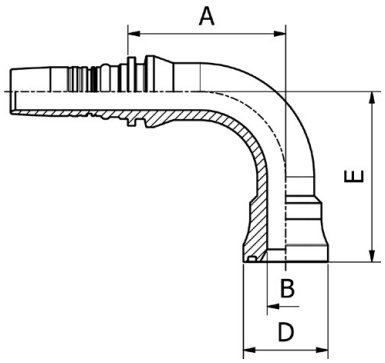


XTRAFLANGE

M48540

45° XTRAFLANGE/62 (SAE J518 CODE 62 - ISO 6162-2 PORT COMPATIBLE)

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M48540-12-12	19	- 12	3/4"	3/4"		14.5	92.5	41.4	38.0			
M48540-16-16	25	- 16	1"	1"		19.5	101.5	47.7	45.0			
M48540-20-20	31	- 20	1.1/4"	1.1/4"		25.0	138.0	54.4	62.5			
M48540-24-24	38	- 24	1.1/2"	1.1/2"		31.0	155.0	63.7	71.5			
M48540-32-32	51	- 32	2"	2"		39.0	193.5	79.6	92.5			

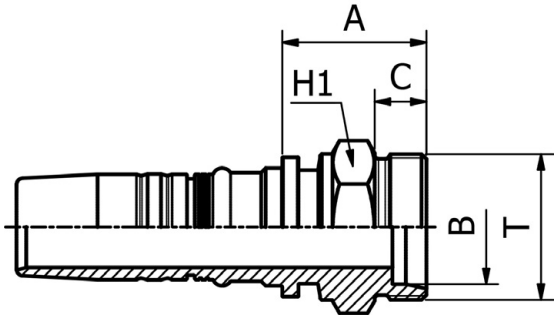


XTRAFLANGE

M48590

90° XTRAFLANGE/62 (SAE J518 CODE 62 - ISO 6162-2 PORT COMPATIBLE)

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M48590-12-12	19	- 12	3/4"	3/4"		14.5	75.5	41.4	75.0			
M48590-16-16	25	- 16	1"	1"		19.5	83.5	47.7	90.0			
M48590-20-20	31	- 20	1.1/4"	1.1/4"		25.0	107.0	54.4	120.0			
M48590-24-24	38	- 24	1.1/2"	1.1/2"		31.0	122.0	63.7	140.0			
M48590-32-32	51	- 32	2"	2"		39.0	147.5	79.6	178.0			

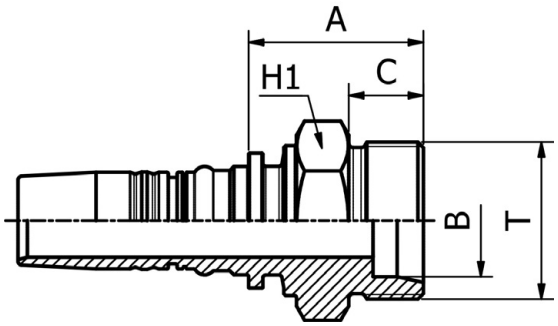


DIN STANDARD CONNECTIONS

M31110

METRIC MALE 24° CONE SEAT LIGHT DUTY DIN 20066 / ISO 12151-2

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	H1			
M31110-20-45	31	- 20	1.1/4"	M 45X2	35.0	35.3	44.5	16.0	46.0			

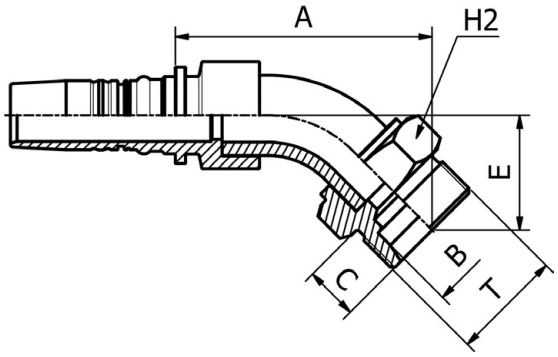


DIN STANDARD CONNECTIONS

M31210

METRIC
MALE 24° CONE SEAT HEAVY DUTY
DIN 20066 / ISO 12151-2

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	H1			
M31210-10-30	16	- 10	5/8"	M 30X2	20.0	12.0	37.0	16.0	30.0			
M31210-12-30	19	- 12	3/4"	M 30X2	20.0	14.5	38.5	16.0	32.0			
M31210-12-36	19	- 12	3/4"	M 36X2	25.0	14.5	43.5	18.0	36.0			
M31210-16-36	25	- 16	1"	M 36X2	25.0	19.5	45.0	18.0	36.0			
M31210-16-42	25	- 16	1"	M 42X2	30.0	19.5	47.0	20.0	46.0			
M31210-20-52	31	- 20	1.1/4"	M 52X2	38.0	25.0	55.0	22.0	55.0			
M31210-24-52	38	- 24	1.1/2"	M 52X2	38.0	31.0	55.5	22.0	55.0			



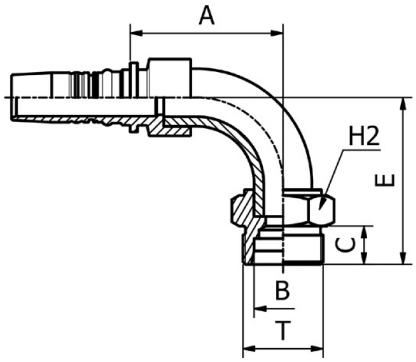
DIN STANDARD CONNECTIONS

M31240

45° METRIC
MALE 24° CONE SEAT HEAVY DUTY
DIN 20066 / ISO 12151-2

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	E	H2		
M31240-16-42	25	- 16	1"	M 42X2	30.0	25.0	96.0	20.0	43.0	46.0		
M31240-20-52	31	- 20	1.1/4"	M 52X2	38.0	25.0	110.0	22.0	49.5	55.0		

*All items are made from brazing



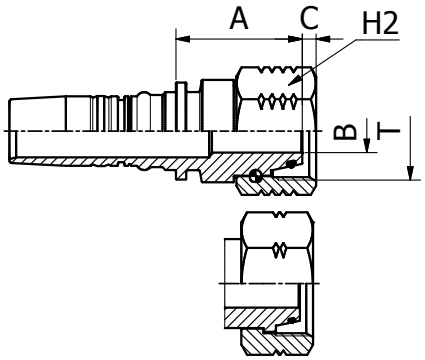
DIN STANDARD CONNECTIONS

M31290

90° METRIC
MALE 24° CONE SEAT HEAVY DUTY
DIN 20066 / ISO 12151-2

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	E	H2		
M31290-10-30	16	- 10	5/8"	M 30X2	20.0	15.0	64.5	29.0	64.0	32.0		
M31290-16-42	25	- 16	1"	M 42X2	30.0	20.0	79.5	20.0	87.0	46.0		
M31290-20-52	31	- 20	1.1/4"	M 52X2	38.0	25.0	96.0	22.0	105.0	55.0		

*All items are made from brazing

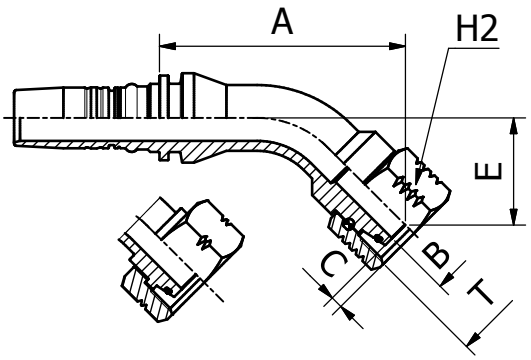


DIN STANDARD CONNECTIONS

M41612/M41613

METRIC
O-RING FEMALE 24° CONE HEAVY DUTY
DIN 20066 / ISO 12151-2

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	H2			
M41612-10-24	16	- 10	5/8"	M 24X1,5	16.0	9.3	31.0	4.0	30.0			
M41613-10-30	16	- 10	5/8"	M 30X2	20.0	12.0	37.0	3.5	36.0			
M41612-12-30	19	- 12	3/4"	M 30X2	20.0	12.5	44.0	3.2	36.0			
M41613-12-36	19	- 12	3/4"	M 36X2	25.0	14.5	42.0	3.4	41.0			
M41613-12-42	19	- 12	3/4"	M 42X2	30.0	19.0	36.0	6.3	50.0			
M41612-16-36	25	- 16	1"	M 36X2	25.0	16.0	47.0	4.1	41.0			
M41613-16-42	25	- 16	1"	M 42X2	30.0	19.5	46.5	5.3	50.0			
M41613-16-52	25	- 16	1"	M 52X2	38.0	26.1	49.5	8.0	60.0			
M41612-20-42	31	- 20	1.1/4"	M 42X2	30.0	19.0	47.5	6.0	50.0			
M41613-20-52	31	- 20	1.1/4"	M 52X2	38.0	26.1	41.5	8.0	60.0			
M41612-24-52	38	- 24	1.1/2"	M 52X2	38.0	29.0	52.5	8.8	60.0			

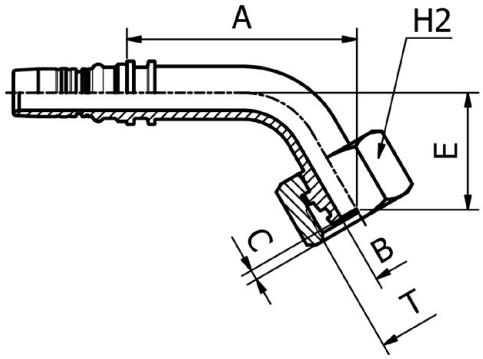


DIN STANDARD CONNECTIONS

M41642/M41643

45° METRIC
O-RING FEMALE SWEPT ELBOW 24° CONE
HEAVY DUTY
DIN 20066 / ISO 12151-2

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	E	H2		
M41643-10-30	16	- 10	5/8"	M 30X2	20.0	12.0	66.5	3.5	29.5	36.0		
M41642-12-30	19	- 12	3/4"	M 30X2	20.0	12.5	79.0	3.2	35.0	36.0		
M41643-12-36	19	- 12	3/4"	M 36X2	25.0	14.5	81.0	3.4	33.5	41.0		
M41642-16-36	25	- 16	1"	M 36X2	25.0	16.0	103.0	4.1	45.5	41.0		
M41643-16-42	25	- 16	1"	M 42X2	30.0	19.5	93.0	5.3	36.0	50.0		
M41642-20-42	31	- 20	1.1/4"	M 42X2	30.0	19.1	116.5	6.0	44.5	50.0		
M41643-20-52	31	- 20	1.1/4"	M 52X2	38.0	26.1	110.0	8.0	40.0	60.0		
M41642-24-52	38	- 24	1.1/2"	M 52X2	38.0	29.0	128.0	8.8	51.5	60.0		

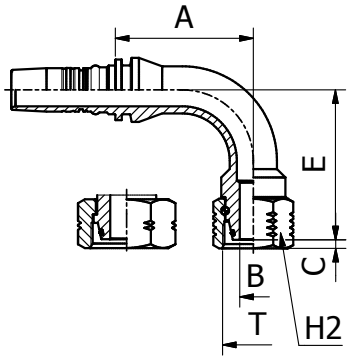


DIN STANDARD CONNECTIONS

M41663

60° METRIC
O-RING FEMALE SWEPT ELBOW 24° CONE
HEAVY DUTY
DIN 20066 / ISO 12151-2

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	E	H2		
M41663-10-30	16	- 10	5/8"	M30X2	20.0	12.0	78.4	3.5	40.0	36		

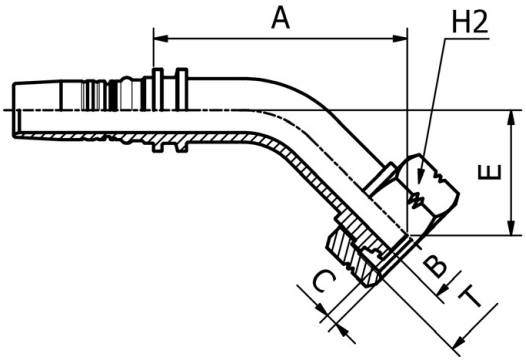


DIN STANDARD CONNECTIONS

M41692/M41693

90° METRIC
O-RING FEMALE SWEPT ELBOW 24° CONE
HEAVY DUTY
DIN 20066 / ISO 12151-2

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	E	H2		
M41693-10-30	16	- 10	5/8"	M 30X2	20.0	12.0	52.5	3.5	57.5	36.0		
M41692-12-30	19	- 12	3/4"	M 30X2	25.0	12.5	64.0	3.2	68.5	36.0		
M41693-12-36	19	- 12	3/4"	M 36X2	25.0	14.5	67.0	3.4	67.5	41.0		
M41692-16-36	25	- 16	1"	M 36X2	25.0	16.0	81.5	4.1	89.0	41.0		
M41693-16-42	25	- 16	1"	M 42X2	30.0	19.5	81.5	5.3	75.5	50.0		
M41692-20-42	31	- 20	1.1/4"	M 42X2	30.0	19.1	103.5	6.0	90.0	50.0		
M41693-20-52	31	- 20	1.1/4"	M 52X2	38.0	26.1	100.0	8.0	86.5	60.0		

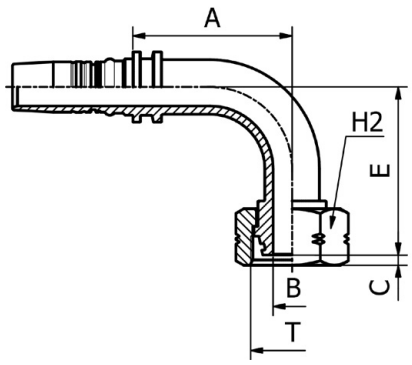


DIN STANDARD CONNECTIONS

M41243 LONG DROP

45° METRIC
O-RING FEMALE
MEDIUM/LONG DROP ELBOW 24° CONE
HEAVY DUTY
DIN 20066/ ISO 12151-2 (SLIP-ON NUT)

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	E	H2		
M41243-10-30	16	- 10	5/8"	M 30X2	20.0	12.0	77.5	3.5	35.0	36.0		
M41243-12-36	19	- 12	3/4"	M 36X2	25.0	14.5	101.0	3.4	45.0	41.0		
M41243-16-42	25	- 16	1"	M 42X2	30.0	19.5	112.0	5.3	55.0	50.0		
M41243-20-52	31	- 20	1.1/4"	M 52X2	38.0	26.1	133.0	8.0	63.0	60.0		

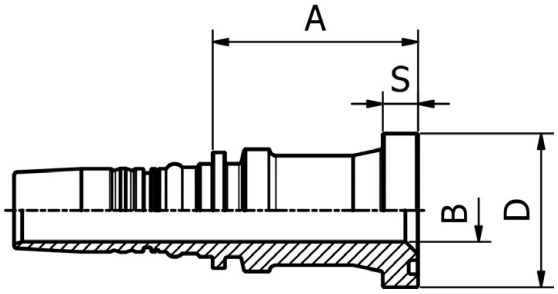


DIN STANDARD CONNECTIONS

M41293 LONG DROP

90° METRIC
O-RING FEMALE
MEDIUM/LONG DROP ELBOW 24° CONE
HEAVY DUTY
DIN 20066 / ISO 12151-2 (SLIP-ON NUT)

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	E	H2		
M41293-10-30	16	- 10	5/8"	M 30X2	20.0	12.0	53.0	3.5	60.0	36.0		
M41293-12-36	19	- 12	3/4"	M 36X2	25.0	14.5	67.0	3.4	67.5	41.0		
M41293-16-42	25	- 16	1"	M 42X2	30.0	19.5	81.5	5.3	86.0	50.0		
M41293-20-52	31	- 20	1.1/4"	M 52X2	38.0	26.1	100.0	8.0	92.0	60.0		

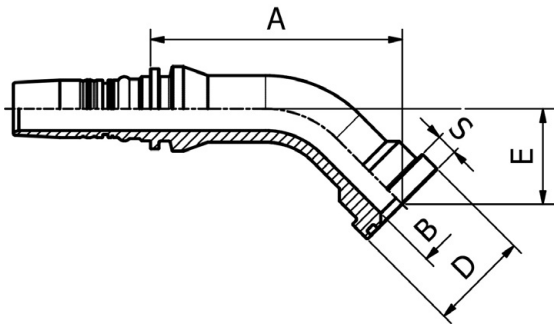


ORIGINAL EQUIPMENT CONNECTIONS

M43710

FLANGE PLUS
(SAE J518 CODE 62 - ISO 6162-2
PORT COMPATIBLE)

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	S			
M43710-10-12	16	- 10	5/8"	3/4"		16.0	51.5	41.5	9.0			
M43710-12-12	19	- 12	3/4"	3/4"		14.5	71.5	41.4	10.0			
M43710-16-16	25	- 16	1"	1"		19.5	64.0	47.7	11.0			
M43710-20-20	31	- 20	1.1/4"	1.1/4"		25.0	81.0	54.2	12.0			

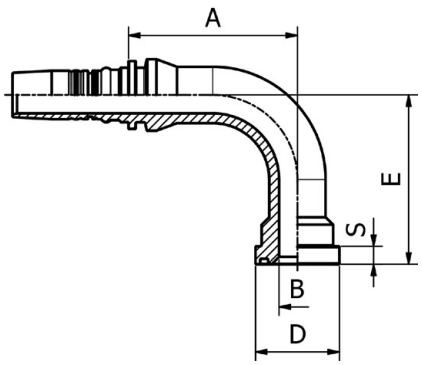


ORIGINAL EQUIPMENT CONNECTIONS

M43740

45° FLANGE PLUS (SAE J518 CODE 62 - ISO 6162-2 PORT COMPATIBLE)

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	S		
M43740-10-12	16	- 10	5/8"	3/4"		16.0	72.5	41.4	31.0	9.0		
M43740-12-12	19	- 12	3/4"	3/4"		14.5	113.0	41.4	40.0	10.0		
M43740-16-16	25	- 16	1"	1"		19.5	113.5	47.7	43.0	11.0		
M43740-20-20	31	- 20	1.1/4"	1.1/4"		25.0	133.5	54.2	50.0	12.0		



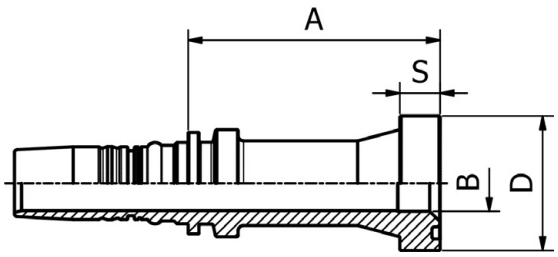
ORIGINAL EQUIPMENT CONNECTIONS

M43790

90° FLANGE PLUS (SAE J518 CODE 62 - ISO 6162-2 PORT COMPATIBLE)

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	S		
M43790-10-12	16	- 10	5/8"	3/4"		16.0	61.5	41.4	60.5	9.0		
M43790-12-12	19	- 12	3/4"	3/4"		14.5	93.0	41.4	75.0	10.0		
M43790-16-16	25	- 16	1"	1"		19.5	90.0	47.7	90.0	11.0		
M43790-20-20	31	- 20	1.1/4"	1.1/4"		25.0	115.0	54.2	110.0	12.0		

ORIGINAL EQUIPMENT CONNECTIONS

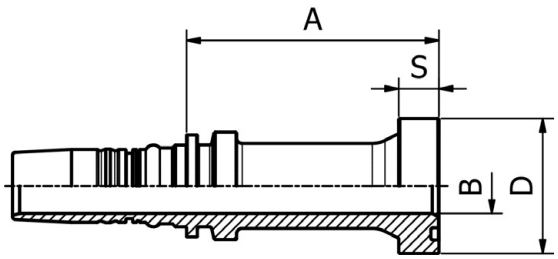


M43910

STRAIGHT SUPERCAT SERIES FLANGE

PART. REF.	HOSE BORE		Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	S			
M43910-12-12	19	- 12	3/4"	3/4"		16.0	77.0	41.5	14.3			
M43910-12-16	19	- 12	3/4"	1"		20.0	88.5	47.7	14.3			
M43910-16-16	25	- 16	1"	1"		20.0	89.5	47.7	14.3			
M43910-16-20	25	- 16	1"	1.1/4"		26.0	93.5	54.0	14.3			
M43910-20-20	31	- 20	1.1/4"	1.1/4"		26.1	95.0	54.0	14.3			
M43910-20-24	31	- 20	1.1/4"	1.1/2"		32.1	98.5	63.6	14.3			
M43910-24-24	38	- 24	1.1/2"	1.1/2"		32.1	99.0	63.6	14.3			
M43910-24-32	38	- 24	1.1/2"	2"		42.0	115.0	79.3	14.3			
M43910-32-24	51	- 32	2"	1.1/2"		32.1	119.5	63.6	14.3			
M43910-32-32	51	- 32	2"	2"		42.0	114.5	79.3	14.3			

ORIGINAL EQUIPMENT CONNECTIONS

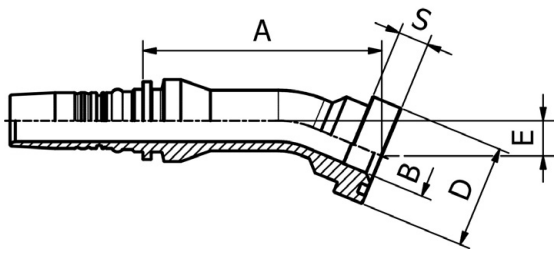


M43910CT

STRAIGHT REALCAT FLANGE

PART. REF.	HOSE BORE		Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	S			
M43910-16-16CT	25	- 16	1"	1"		19.5	89.5	47.7	14.3			
M43910-20-20CT	31	- 20	1.1/4"	1.1/4"		25.0	95.0	54.0	14.3			
M43910-20-24CT	31	- 20	1.1/4"	1.1/2"		31.0	98.0	63.6	14.3			
M43910-24-24CT	38	- 24	1.1/2"	1.1/2"		31.0	99.0	63.6	14.3			

ORIGINAL EQUIPMENT CONNECTIONS

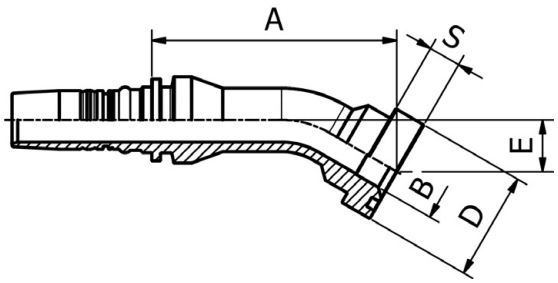


M43920

22,5° SUPERCAT SERIES FLANGE

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	S		
M43920-12-12	19	- 12	3/4"	3/4"		16.0	94.0	41.5	14.5	14.3		
M43920-12-16	19	- 12	3/4"	1"		20.0	101.5	47.7	16.5	14.3		
M43920-16-16	25	- 16	1"	1"		20.0	110.5	47.7	16.5	14.3		
M43920-16-20	25	- 16	1"	1.1/4"		26.1	115.5	54.0	19.0	14.3		
M43920-20-20	31	- 20	1.1/4"	1.1/4"		26.1	122.0	54.0	18.0	14.3		
M43920-20-24	31	- 20	1.1/4"	1.1/2"		32.0	139.0	63.7	23.0	14.3		
M43920-24-24	38	- 24	1.1/2"	1.1/2"		32.0	138.0	63.7	20.0	14.3		

ORIGINAL EQUIPMENT CONNECTIONS



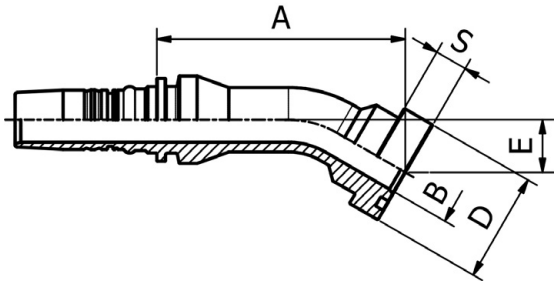
M43930

30° SUPERCAT SERIES FLANGE

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	S		
M43930-12-12	19	- 12	3/4"	3/4"		16.0	92.0	41.5	20.0	14.3		
M43930-12-16	19	- 12	3/4"	1"		20.0	99.0	47.7	22.5	14.3		
M43930-16-16	25	- 16	1"	1"		20.0	108.0	47.7	23.0	14.3		
M43930-16-20	25	- 16	1"	1.1/4"		26.1	112.5	54.0	26.0	14.3		
M43930-20-20	31	- 20	1.1/4"	1.1/4"		26.1	119.5	54.0	25.0	14.3		
M43930-20-24	31	- 20	1.1/4"	1.1/2"		32.0	135.5	63.7	32.0	14.3		
M43930-24-24	38	- 24	1.1/2"	1.1/2"		32.0	135.0	63.7	28.0	14.3		
M43930-24-32	38	- 24	1.1/2"	2"		42.0	151.5	79.3	36.0	14.3		
M43930-32-32	51	- 32	2"	2"		42.0	171.5	79.3	37.5	14.3		

ORIGINAL EQUIPMENT CONNECTIONS

M43930CT

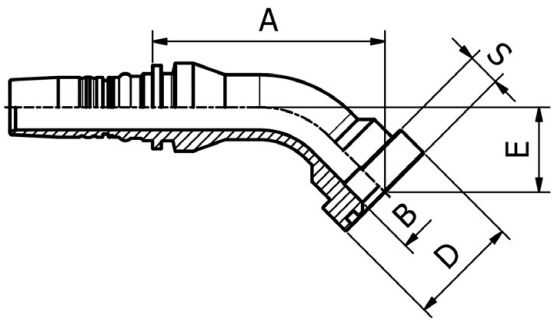


30° REALCAT SERIES FLANGE

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	S		
M43930-12-12CT	19	- 12	3/4"	3/4"		14.5	92.0	41.5	20.0	14.3		
M43930-16-16CT	25	- 16	1"	1"		19.5	108.0	47.7	23.0	14.3		
M43930-20-20CT	31	- 20	1.1/4"	1.1/4"		25.0	119.5	54.0	25.0	14.3		
M43930-24-24CT	38	- 24	1.1/2"	1.1/2"		31.0	135.0	63.7	28.0	14.3		

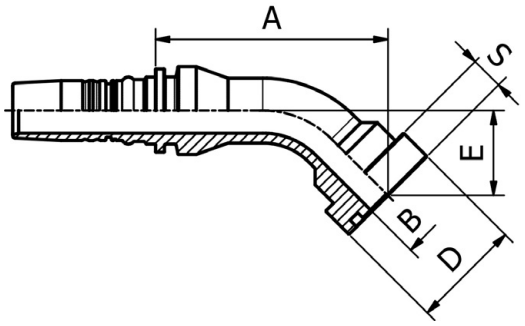
ORIGINAL EQUIPMENT CONNECTIONS

M43940



45° SUPERCAT SERIES FLANGE

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	S		
M43940-12-12	19	- 12	3/4"	3/4"		16.0	85.0	41.5	32.0	14.3		
M43940-12-16	19	- 12	3/4"	1"		20.0	91.5	47.7	35.5	14.3		
M43940-16-16	25	- 16	1"	1"		20.0	100.5	47.7	36.5	14.3		
M43940-16-20	25	- 16	1"	1.1/4"		26.1	103.5	54.0	40.5	14.3		
M43940-20-20	31	- 20	1.1/4"	1.1/4"		26.1	110.5	54.0	40.5	14.3		
M43940-20-24	31	- 20	1.1/4"	1.1/2"		32.0	124.5	63.7	50.5	14.3		
M43940-24-24	38	- 24	1.1/2"	1.1/2"		32.0	125.5	63.7	45.5	14.3		
M43940-24-32	38	- 24	1.1/2"	2"		42.0	139.5	79.3	56.5	14.3		
M43940-32-32	51	- 32	2"	2"		42.0	158.5	79.3	61.5	14.3		

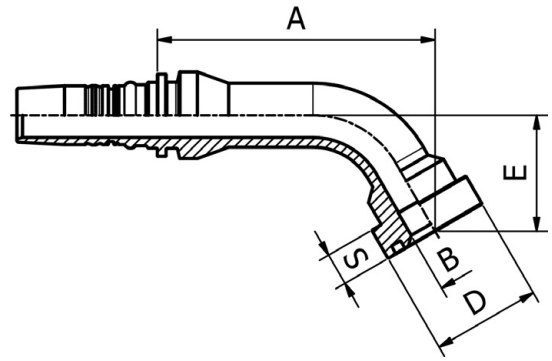


ORIGINAL EQUIPMENT CONNECTIONS

M43940CT

45° REALCAT FLANGE

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	S		
M43940-16-16CT	25	- 16	1"	1"		19.5	100.5	47.7	36.5	14.3		
M43940-16-20CT	25	- 16	1"	1.1/4"		25.0	103.5	54.0	40.5	14.3		
M43940-20-24CT	31	- 20	1.1/4"	1.1/2"		31.0	124.5	63.7	50.5	14.3		
M43940-20-20CT	31	- 20	1.1/4"	1.1/4"		25.0	110.5	54.0	40.5	14.3		
M43940-24-24CT	38	- 24	1.1/2"	1.1/2"		31.0	125.5	63.7	45.0	14.3		

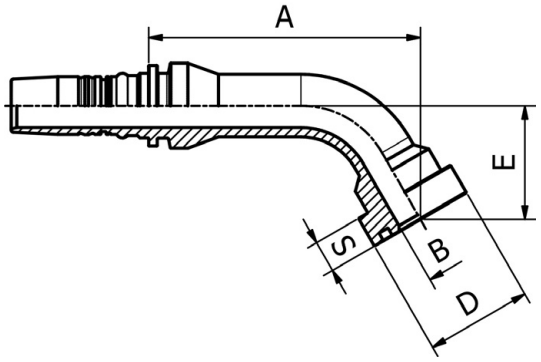


ORIGINAL EQUIPMENT CONNECTIONS

M43960

60° SUPERCAT SERIES FLANGE

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	S		
M43960-12-16	19	- 12	3/4"	1"		20.0	106.0	47.7	48.0	14.3		
M43960-12-12	19	- 12	3/4"	3/4"		16.0	101.0	41.5	44.0	14.3		
M43960-16-16	25	- 16	1"	1"		20.0	122.0	47.7	51.0	14.3		
M43960-16-16055	25	- 16	1"	1"		20.0	102.5	47.7	55.0	14.3		
M43960-16-20	25	- 16	1"	1.1/4"		26.1	122.0	54.0	55.0	14.3		
M43960-20-20	31	- 20	1.1/4"	1.1/4"		26.1	136.0	54.0	56.0	14.3		
M43960-20-24	31	- 20	1.1/4"	1.1/2"		32.0	149.0	63.7	69.0	14.3		
M43960-24-24	38	- 24	1.1/2"	1.1/2"		32.0	154.5	63.7	63.0	14.3		
M43960-32-32	51	- 32	2"	2"		42.0	202.0	79.3	86.5	14.3		
M43960-32-32150	51	- 32	2"	2"		42.0	196.5	79.3	150.0	14.3		

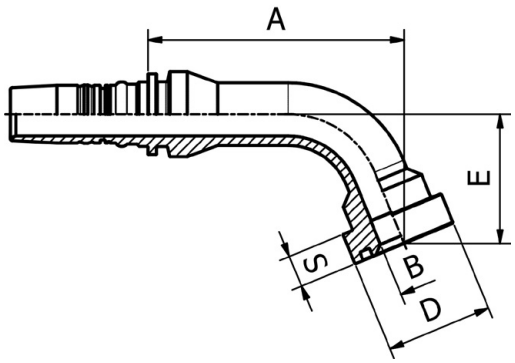


ORIGINAL EQUIPMENT CONNECTIONS

M43960CT

60° REALCAT SERIES FLANGE

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	S		
M43960-16-16CT	25	- 16	1"	1"		19.5	122.0	47.7	51.0	14.3		
M43960-16-20CT	25	- 16	1"	1.1/4"		25.0	122.0	54.0	55.0	14.3		
M43960-24-24CT	38	- 24	1.1/2"	1.1/2"		31.0	154.5	63.7	63.5	14.3		

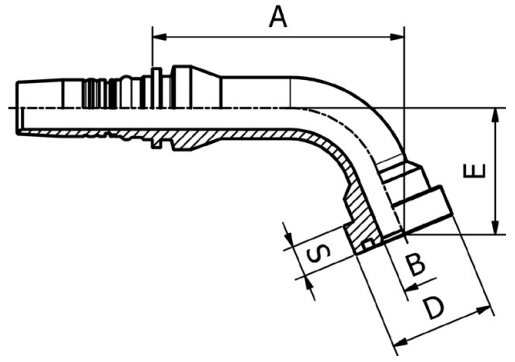


ORIGINAL EQUIPMENT CONNECTIONS

M43970

67,5° SUPERCAT SERIES FLANGE

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	S		
M43970-12-12	19	- 12	3/4"	3/4"		16.0	95.0	41.5	49.5	14.3		
M43970-12-16	19	- 12	3/4"	1"		20.0	99.5	47.7	54.0	14.3		
M43970-16-16	25	- 16	1"	1"		20.0	115.0	47.7	58.0	14.3		
M43970-16-20	25	- 16	1"	1.1/4"		26.1	114.5	54.0	62.0	14.3		
M43970-20-20	31	- 20	1.1/4"	1.1/4"		26.1	128.0	54.0	64.0	14.3		
M43970-20-24	31	- 20	1.1/4"	1.1/2"		32.0	139.5	63.7	78.0	14.3		
M43970-24-24	38	- 24	1.1/2"	1.1/2"		32.0	146.0	63.7	72.0	14.3		
M43970-32-32	51	- 32	2"	2"		42.0	189.5	79.3	99.0	14.3		

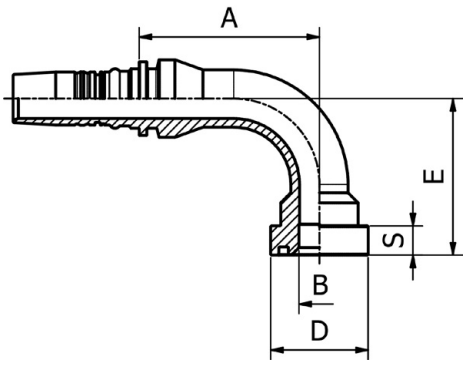


ORIGINAL EQUIPMENT CONNECTIONS

M43970CT

67,5° REALCAT SERIES FLANGE

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	S		
M43970-16-16CT	25	- 16	1"	1"		19.5	115.0	47.7	58.0	14.3		
M43970-16-20CT	25	- 16	1"	1.1/4"		25.0	114.5	64.0	62.0	14.3		

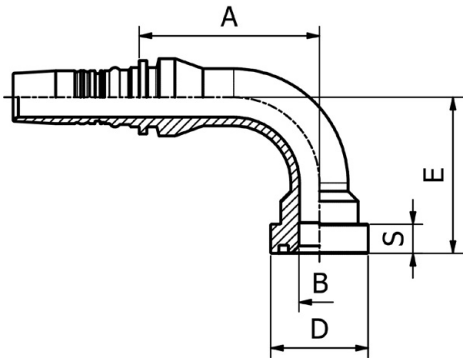


ORIGINAL EQUIPMENT CONNECTIONS

M43990

90° SUPERCAT SERIES FLANGE

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	S		
M43990-12-12	19	- 12	3/4"	3/4"		16.0	72.5	41.5	64.5	14.3		
M43990-12-16	19	- 12	3/4"	1"		20.0	75.0	47.7	69.5	14.3		
M43990-16-16	25	- 16	1"	1"		20.0	88.5	47.7	76.5	14.3		
M43990-16-20	25	- 16	1"	1.1/4"		26.1	86.5	54.0	80.5	14.3		
M43990-20-20	31	- 20	1.1/4"	1.1/4"		26.1	98.5	54.0	85.0	14.3		
M43990-20-24	31	- 20	1.1/4"	1.1/2"		32.0	104.0	63.7	101.0	14.3		
M43990-24-24	38	- 24	1.1/2"	1.1/2"		32.0	112.5	63.7	96.0	14.3		
M43990-24-32	38	- 24	1.1/2"	2"		42.0	115.0	79.3	112.0	14.3		
M43990-32-32	51	- 32	2"	2"		42.0	144.0	79.3	133.5	14.3		

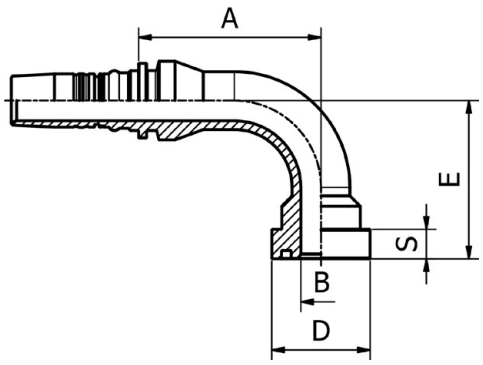


ORIGINAL EQUIPMENT CONNECTIONS

M43990 LONG DROP

90° LONG DROP SUPERCAT SERIES FLANGE

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	S		
M43990-16-16150	25	- 16	1"	1"		20.0	88.5	47.7	150.0	14.3		
M43990-16-16132	25	- 16	1"	1"		20.0	88.5	47.7	132.0	14.3		
M43990-16-20150	25	- 16	1"	1.1/4"		26.1	88.5	54.0	150.0	14.3		
M43990-20-24135	31	- 20	1.1/4"	1.1/2"		32.0	98.5	63.7	135.0	14.3		
M43990-20-20150	31	- 20	1.1/4"	1.1/4"		26.1	98.5	54.0	150.0	14.3		
M43990-20-20092	31	- 20	1.1/4"	1.1/4"		26.1	98.5	54.0	92.0	14.3		
M43990-24-24106	38	- 24	1.1/2"	1.1/2"		32.0	112.5	63.7	106.0	14.3		

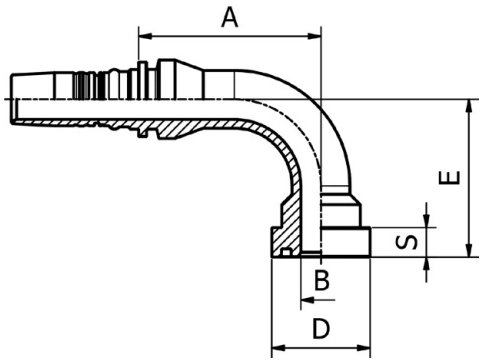


ORIGINAL EQUIPMENT CONNECTIONS

M43990CT

90° REALCAT FLANGE

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	S		
M43990-16-16CT	25	- 16	1"	1"		19.5	88.5	47.7	76.5	14.3		
M43990-16-20CT	25	- 16	1"	1.1/4"		25.0	86.5	54.0	80.5	14.3		
M43990-20-20CT	31	- 20	1.1/4"	1.1/4"		25.0	98.5	54.0	85.0	14.3		
M43990-24-24CT	38	- 24	1.1/2"	1.1/2"		31.0	112.5	63.7	96.0	14.3		

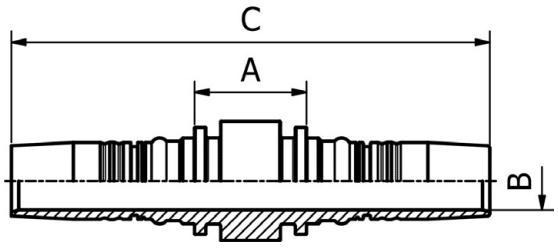


ORIGINAL EQUIPMENT CONNECTIONS

M43990CT LONG DROP

90° LONG DROP REALCAT FLANGE

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	S		
M43990-16-16132CT	25	- 16	1"	1"		19.5	88.5	47.7	132.0	14.3		
M43990-20-20150CT	25	- 16	1"	1.1/4"		25.0	98.5	54.0	150.0	14.3		
M43990-24-24106CT	31	- 20	1.1/4"	1.1/2"		31.0	112.5	63.7	106.0	14.3		

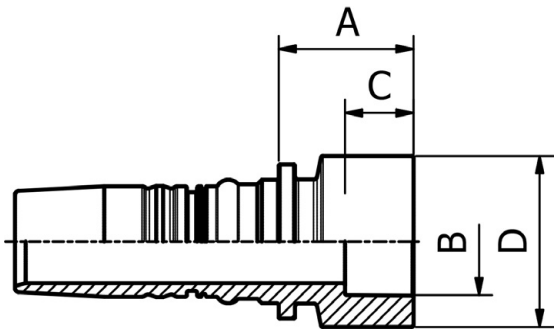


DOUBLE CONNECTOR

M30050

DOUBLE CONNECTOR

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch			B	A	C				
M30050-20-20	31	- 20	1.1/4"			25.0	42.0	206.0				
M30050-24-24	38	- 24	1.1/2"			31.0	43.1	229.1				
M30050-32-32	51	- 32	2"			41.0	43.0	244.7				

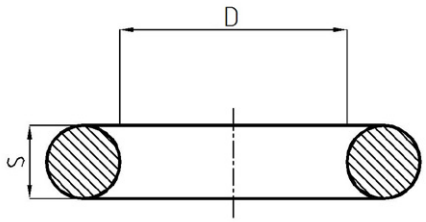


TAIL

M49510WL

WELDING TAIL

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch			B	A	C	D			
M49510-10-18WL	16	- 10	5/8"			18.1	20.5	10.0	26.0			
M49510-12-22WL	19	- 12	3/4"			22.1	27.5	12.0	34.0			
M49510-16-28WL	25	- 16	1"			28.1	31.5	14.0	40.0			
M49510-20-35WL	31	- 20	1.1/4"			35.1	33.0	14.0	49.0			

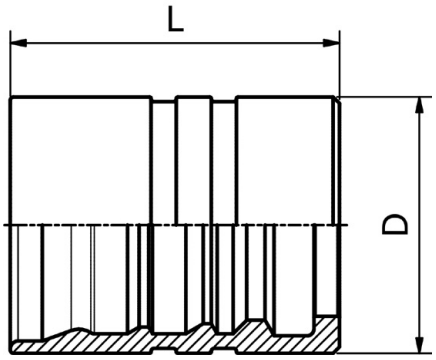


O-RING

JO29

OPTIONAL INTERLOCK PLUS O-RING

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch			D	S					
JO29161218	16	- 10	5/8"			12.42	1.78					
JO29191618	19	- 12	3/4"			15.6	1.78					
JO29262218	25	- 16	1"			21.95	1.78					
JO29322818	31	- 20	1.1/4"			28.3	1.78					
JO29383518	38	- 24	1.1/2"			34.65	1.78					
JO29514718	51	- 32	2"			47.35	1.78					
JO29605718	63	- 40	2.1/2"			56.87	1.78					
JO29737018	76	- 48	3"			69.57	1.78					

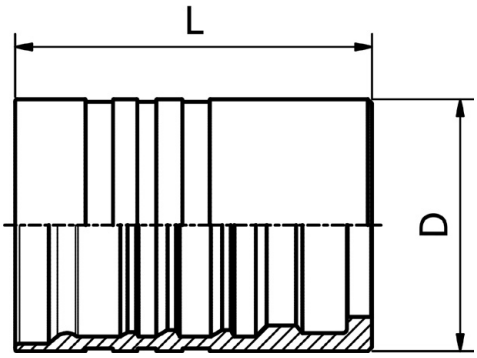


FERRULE

IM01500

DOUBLE SKIVE FERRULE FOR HEAVY DUTY SPIRAL HOSES (4 PLY) STAINLESS STEEL

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch			D	L					
IM01500-10	16	- 10	5/8"			35.0	40.9					
IM01500-12	19	- 12	3/4"			40.0	51.4					
IM01500-16	25	- 16	1"			48.0	64.5					
IM01500-20	31	- 20	1.1/4"			57.0	84.0					
IM01500-24	38	- 24	1.1/2"			64.3	94.0					
IM01500-32	51	- 32	2"			83.5	107.0					
IM01500-40	63	- 40	2.1/2"			100.0	135.0					
IM01500-48	76	- 48	3"			107.0	125.0					

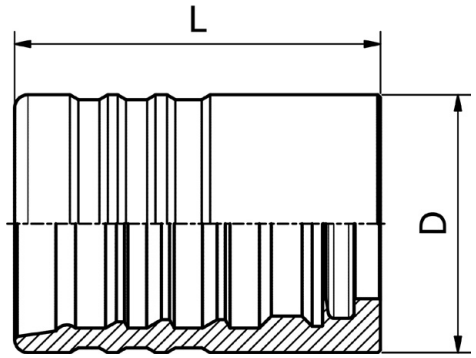


FERRULE

IM01600

DOUBLE SKIVE FERRULE FOR HEAVY DUTY SPIRAL HOSES (6 PLY) STAINLESS STEEL

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch			D	L					
IM01600-20	31	- 20	1.1/4"			60.0	85.0					
IM01600-24	38	- 24	1.1/2"			69.0	96.0					

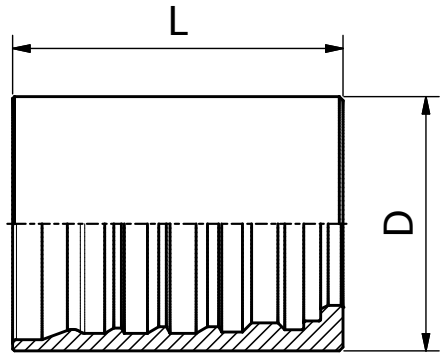


FERRULE

IM01800/IM01810

DOUBLE SKIVE FERRULE FOR EXTRA DUTY SPIRAL HOSES (6 PLY) STAINLESS STEEL

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch			D	L					
IM01800-32	51	- 32	2"			86.5	108.0					
IM01810-40	63	- 40	2.1/2"			103.0	135.0					
IM01810-48	76	- 48	3"			113.5	125.0					

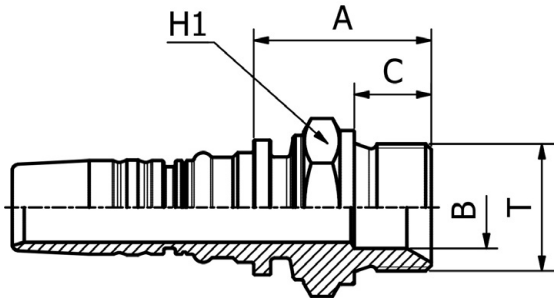


FERRULE

IM01900

DOUBLE SKIVE FERRULE

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch			D	L					
IM01900-20	31	-20	1.1/4"			68	88,2					

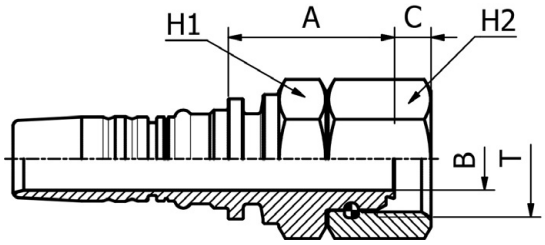


BS STANDARD CONNECTIONS

IM30510

BSP
MALE PARALLEL 60° CONE SEAT
BS5200 / ISO 8434-6
(STAINLESS STEEL)

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1			
IM30510-12-12	19	- 12	3/4"	3/4" - 14		17.0	37.0	16.0	32.0			
IM30510-16-16	25	- 16	1"	1" - 11		22.5	43.0	19.0	41.0			
IM30510-20-20	31	- 20	1.1/4"	1.1/4" - 11		28.5	50.5	20.0	50.0			
IM30510-24-24	38	- 24	1.1/2"	1.1/2" - 11		33.5	54.5	22.0	55.0			
IM30510-32-32	51	- 32	2"	2" - 11		42.0	58.0	25.0	70.0			

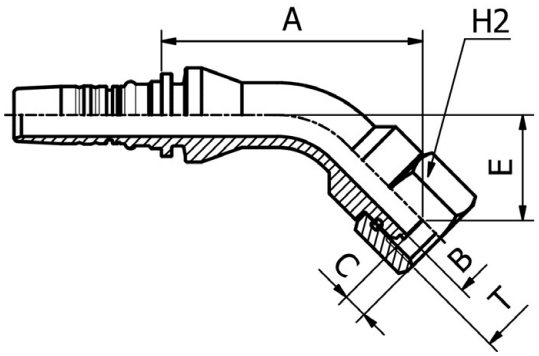


BS STANDARD CONNECTIONS

IM40812

BSP
O-RING FEMALE 60° CONE
BS5200 / ISO 12151-6
(THRUST-WIRE NUT) STAINLESS STEEL

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1	H2		
IM40812-12-12	19	- 12	3/4"	3/4" - 14		14.5	39.0	8.5	32.0	32.0		
IM40812-16-16	25	- 16	1"	1" - 11		19.5	44.5	10.6	41.0	41.0		
IM40812-20-20	31	- 20	1.1/4"	1.1/4" - 11		26.1	52.5	10.5	50.0	50.0		
IM40812-24-24	38	- 24	1.1/2"	1.1/2" - 11		32.1	51.5	12.5	60.0	60.0		
IM40812-32-32	38	- 24	1.1/2"	1.1/2" - 11		42.0	51.5	16.1	70.0	70.0		

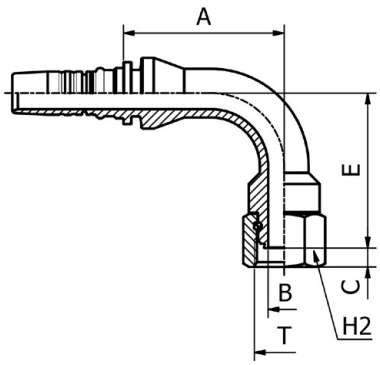


BS STANDARD CONNECTIONS

IM40842

45° BSP
O-RING FEMALE SWEPT ELBOW 60° CONE
BS5200 / ISO 12151-6
(THRUST-WIRE NUT) STAINLESS STEEL

PART. REF.	HOSE BORE		Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
IM40842-12-12	19	- 12	3/4"	3/4" - 14		14.5	88.0	8.5	35.0	32.0		
IM40842-16-16	25	- 16	1"	1" - 11		19.5	97.0	10.6	40.0	41.0		
IM40842-20-20	31	- 20	1.1/4"	1.1/4" - 11		26.1	120.0	10.5	49.5	50.0		
IM40842-24-24	38	- 24	1.1/2"	1.1/2" - 11		32.1	126.5	12.5	50.0	60.0		
IM40842-32-32	51	- 32	2"	2" - 11,5		42.0	162.5	16.1	66.5	70.0		

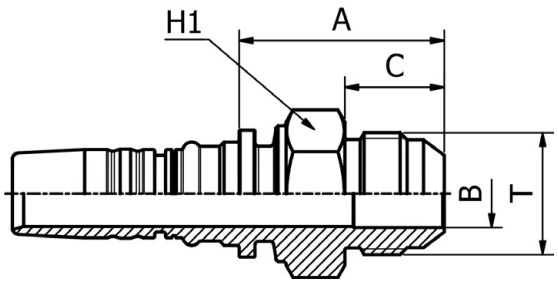


BS STANDARD CONNECTIONS

IM40892

90° BSP
O-RING FEMALE SWEPT ELBOW 60° CONE
BS5200 / ISO 12151-6
(THRUST-WIRE NUT) STAINLESS STEEL

PART. REF.	HOSE BORE		Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
IM40892-12-12	19	- 12	3/4"	3/4" - 14		14.5	72.5	8.5	70.0	32.0		
IM40892-16-16	25	- 16	1"	1" - 11		19.5	82.0	10.6	80.5	41.0		
IM40892-20-20	31	- 20	1.1/4"	1.1/4" - 11		26.1	98.5	10.5	98.0	50.0		
IM40892-24-24	38	- 24	1.1/2"	1.1/2" - 11		32.1	111.5	12.5	109.0	60.0		
IM40892-32-32	51	- 32	2"	2" - 11,5		42.0	143.0	16.1	140.5	70.0		



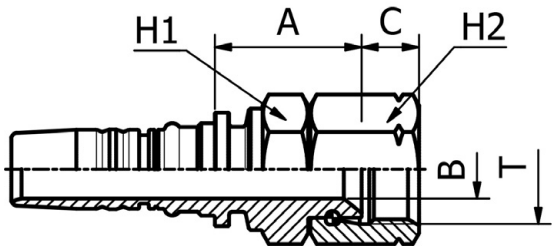
SAE STANDARD CONNECTIONS

IM32510

JIC
MALE 37° CONE
SAE J516 / ISO 12151-5
STAINLESS STEEL

PART. REF.	HOSE BORE		Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1			
IM32510-10-10	16	- 10	5/8"	7/8" - 14		12.0	41.0	19.5	27.0			
IM32510-12-12	19	- 12	3/4"	1.1/16" - 12		15.0	45.5	22.0	32.0			
IM32510-16-16	25	- 16	1"	1.5/16" - 12		20.0	50.5	23.0	38.0			
IM32510-20-20	31	- 20	1.1/4"	1.5/8" - 12		26.1	66.0	24.3	46.0			
IM32510-24-24	38	- 24	1.1/2"	1.7/8" - 12		32.1	64.0	27.5	50.0			
IM32510-32-32	51	- 32	2"	2.1/2" - 12		42.0	81.0	34.0	70.0			

SAE STANDARD CONNECTIONS

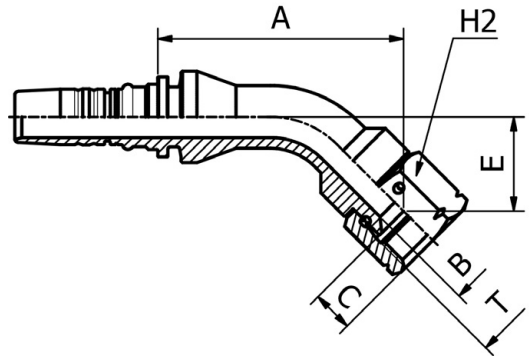


IM42512

JIC
FEMALE 37° CONE SEAT
SAE J516 / ISO 12151-5
(THRUST-WIRE NUT) STAINLESS STEEL

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1	H2		
IM42512-12-12	19	- 12	3/4"	1.1/16" - 12		15.0	36.0	16.0	32.0	32.0		
IM42512-16-16	25	- 16	1"	1.5/16" - 12		21.7	40.5	15.2	41.0	41.0		
IM42512-20-20	31	- 20	1.1/4"	1.5/8" - 12		26.1	51.5	16.2	50.0	50.0		
IM42512-24-24	38	- 24	1.1/2"	1.7/8" - 12		31.0	54.5	18.8	55.0	60.0		
IM42512-32-32	51	- 32	2"	2.1/2" - 8		42.0	54.0	24.0	70.0	75.0		

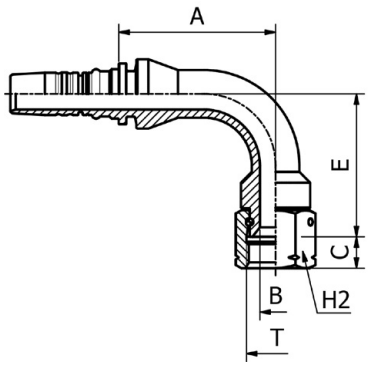
SAE STANDARD CONNECTIONS



IM42542

45° JIC
FEMALE SWEPT ELBOW 37° CONE SEAT
SAE J516 / ISO 12151-5
(THRUST-WIRE NUT) STAINLESS STEEL

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
IM42542-12-12	19	- 12	3/4"	1.1/16" - 12		15.0	86.0	16.0	33.0	32.0		
IM42542-16-16	25	- 16	1"	1.5/16" - 12		21.7	95.0	15.2	37.0	41.0		
IM42542-20-20	31	- 20	1.1/4"	1.5/8" - 12		26.1	115.5	16.2	45.0	50.0		
IM42542-24-24	38	- 24	1.1/2"	1.7/8" - 12		32.1	126.5	18.8	50.0	60.0		



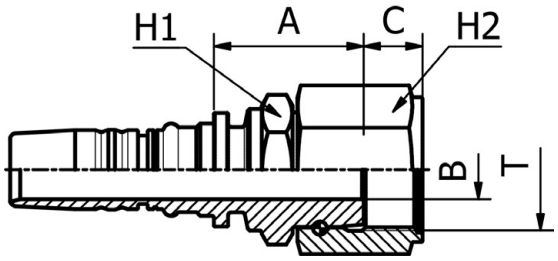
SAE STANDARD CONNECTIONS

IM42592

90° JIC
FEMALE SWEPT ELBOW 37° CONE SEAT
SAE J516 / ISO 12151-5
(THRUST-WIRE NUT) STAINLESS STEEL

PART. REF.	HOSE BORE		Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
IM42592-12-12	19	- 12	3/4"	1.1/16" - 12		15.0	72.5	16.0	66.0	32.0		
IM42592-12-16	19	- 12	3/4"	1.5/16" - 12		21.7	72.5	15.2	71.5	41.0		
IM42592-16-16	25	- 16	1"	1.5/16" - 12		21.7	82.5	15.2	77.5	41.0		
IM42592-20-20	31	- 20	1.1/4"	1.5/8" - 12		26.1	98.5	16.2	92.0	50.0		
IM42592-24-24	38	- 24	1.1/2"	1.7/8" - 12		32.1	111.5	18.8	106.0	60.0		
IM42592-32-32	51	- 32	2"	2.1/2" - 8		42.0	144.5	24.0	137.0	75.0		

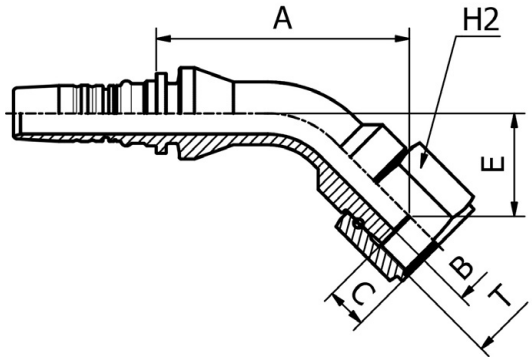
SAE STANDARD CONNECTIONS



IM42412

ORFS
FEMALE
SAE J516 / ISO 12151-1 HEAVY TYPE
(THRUST-WIRE NUT) STAINLESS STEEL

PART. REF.	HOSE BORE		Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	H1	H2			
IM42412-12-12	19	- 12	3/4"	1.3/16" - 12		14.5	37.0	32.0	36.0			
IM42412-16-16	25	- 16	1"	1.7/16" - 12		19.5	42.0	15.0	41.0	46.0		
IM42412-20-20	31	- 20	1.1/4"	1.11/16" - 12		25.0	52.0	15.1	50.0	55.0		
IM42412-24-24	38	- 24	1.1/2"	2" - 12		31.0	55.0	15.0	60.0	60.0		

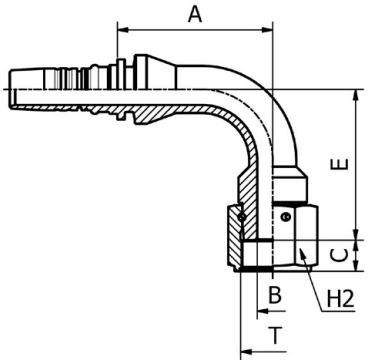


SAE STANDARD CONNECTIONS

IM42442

45° ORFS
FEMALE SWEPT ELBOW
SAE J516 / ISO 12151-1 HEAVY TYPE
(THRUST-WIRE-NUT) STAINLESS STEEL

PART. REF.	HOSE BORE		Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
IM42442-12-12	19	- 12	3/4"	1.3/16" - 12		14.5	89.0	13.9	36.0	36.0		
IM42442-16-16	25	- 16	1"	1.7/16" - 12		19.5	100.0	15.0	42.5	46.0		
IM42442-20-20	31	- 20	1.1/4"	1.11/16" - 12		25.0	119.5	15.1	49.5	55.0		
IM42442-24-24	38	- 24	1.1/2"	2" - 12		31.0	128.5	15.0	52.0	60.0		

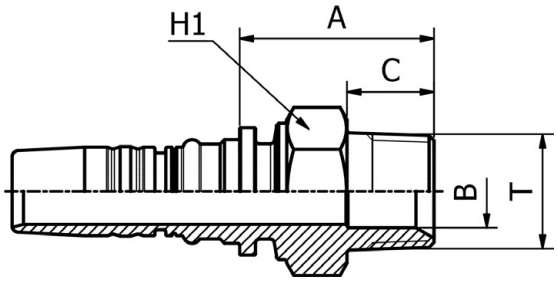


SAE STANDARD CONNECTIONS

IM42492

90° ORFS
FEMALE SWEPT ELBOW
SAE J516 / ISO 12151-1 HEAVY TYPE
(THRUST-WIRE-NUT) STAINLESS STEEL

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
IM42492-12-12	19	- 12	3/4"	1.3/16" - 12		14.5	72.5	13.9	70.5	36.0		
IM42492-16-16	25	- 16	1"	1.7/16" - 12		19.5	82.5	15.0	84.5	46.0		
IM42492-20-20	31	- 20	1.1/4"	1.11/16" - 12		25.0	98.5	15.1	98.0	55.0		
IM42492-24-24	38	- 24	1.1/2"	2" - 12		31.0	111.5	15.0	109.0	60.0		



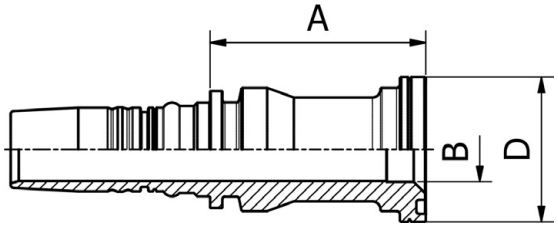
SAE STANDARD CONNECTIONS

IM32810

NPTF
MALE 60° CONE SEAT
SAE J516/J514
(STAINLESS STEEL)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1			
IM32810-10-08	16	- 10	5/8"	1/2" - 14		12.0	39.5	19.2	24.0			
IM32810-10-12	16	- 10	5/8"	3/4" - 14		16.0	40.5	19.2	27.0			
IM32810-12-12	19	- 12	3/4"	3/4" - 14		16.0	43.0	19.2	32.0			
IM32810-16-16	25	- 16	1"	1" - 11,5		19.5	50.5	24.2	38.0			
IM32810-20-20	31	- 20	1.1/4"	1.1/4" - 11,5		26.1	61.0	25.0	46.0			
IM32810-24-24	38	- 24	1.1/2"	1.1/2" - 11,5		32.1	62.5	26.0	50.0			
IM32810-32-32	51	- 32	2"	2" - 11		42.0	67.0	26.5	70.0			
IM32810-40-40	63	- 40	2.1/2"	2.1/2" - 8		51.5	94.5	43.0	80.0			
IM32810-48-48	76	- 48	3"	3" - 8		62.5	123.5	51.5	100.0			

SAE STANDARD CONNECTIONS

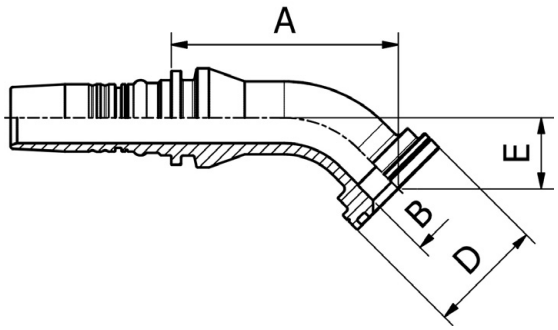


IM43310

ISO / SAE
CODE 61 FLANGE
SAE J516 / ISO 12151-3
(STAINLESS STEEL)

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D				
IM43310-12-12	19	- 12	3/4"	3/4"		16.0	60.0	38.0				
IM43310-16-16	25	- 16	1"	1"		20.0	66.5	44.6				
IM43310-20-20	31	- 20	1.1/4"	1.1/4"		26.1	75.0	51.0				
IM43310-24-24	38	- 24	1.1/2"	1.1/2"		32.1	80.5	60.5				
IM43310-32-32	51	- 32	2"	2"		42.0	83.0	71.6				

SAE STANDARD CONNECTIONS

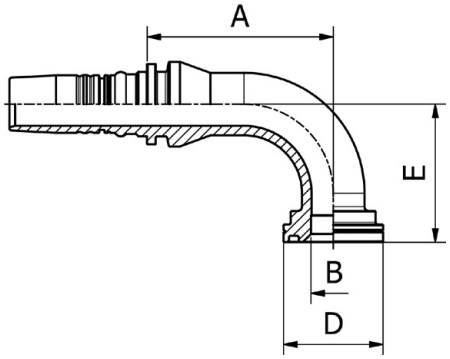


IM43340

45° ISO / SAE
CODE 61 FLANGE
SAE J516 / ISO 12151-3
(STAINLESS STEEL)

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
IM43340-12-12	19	- 12	3/4"	3/4"		16.0	75.5	38.0	23.0			
IM43340-16-16	25	- 16	1"	1"		20.0	87.0	44.6	27.3			
IM43340-20-20	31	- 20	1.1/4"	1.1/4"		26.1	100.5	51.0	29.5			
IM43340-24-24	38	- 24	1.1/2"	1.1/2"		32.1	111.0	60.5	34.5			
IM43340-32-32	51	- 32	2"	2"		42.0	128.5	71.6	39.0			

SAE STANDARD CONNECTIONS

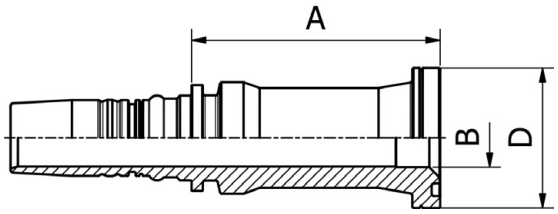


IM43390

90° ISO / SAE
CODE 61 FLANGE
SAE J516 / ISO 12151-3
(STAINLESS STEEL)

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
IM43390-12-12	19	- 12	3/4"	3/4"		16.0	72.0	38.0	52.0			
IM43390-16-16	25	- 16	1"	1"		20.0	83.5	44.6	62.0			
IM43390-20-20	31	- 20	1.1/4"	1.1/4"		26.1	99.0	51.0	70.0			
IM43390-24-24	38	- 24	1.1/2"	1.1/2"		32.1	111.5	60.5	84.0			
IM43390-32-32	51	- 32	2"	2"		42.0	133.5	71.6	99.0			

SAE STANDARD CONNECTIONS

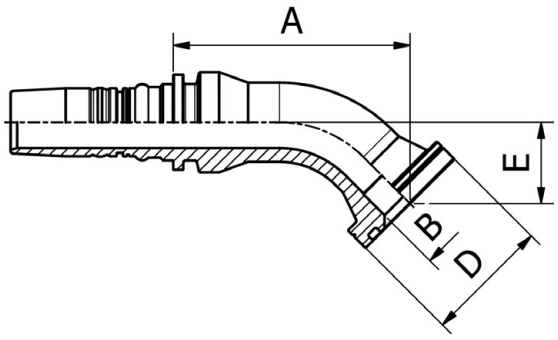


IM43610

ISO / SAE
CODE 62 FLANGE
SAE J516 / ISO 12151-3
(STAINLESS STEEL)

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D				
IM43610-10-12	16	- 10	5/8"	3/4"		16.0	65.0	41.5				
IM43610-10-16	16	- 10	5/8"	1"		20.0	81.5	47.7				
IM43610-12-12	19	- 12	3/4"	3/4"		16.0	71.5	41.4				
IM43610-12-16	19	- 12	3/4"	1"		20.0	83.5	47.7				
IM43610-16-12	25	- 16	1"	3/4"		16.0	80.3	41.4				
IM43610-16-16	25	- 16	1"	1"		20.0	84.5	47.7				
IM43610-16-20	25	- 16	1"	1.1/4"		26.0	89.0	54.2				
IM43610-20-16	31	- 20	1.1/4"	1"		20.0	87.0	47.7				
IM43610-20-20	31	- 20	1.1/4"	1.1/4"		26.1	91.0	54.2				
IM43610-20-24	31	- 20	1.1/4"	1.1/2"		32.1	97.0	63.7				
IM43610-24-20	38	- 24	1.1/2"	1.1/4"		26.0	101.0	54.2				
IM43610-24-24	38	- 24	1.1/2"	1.1/2"		32.1	97.5	63.7				
IM43610-24-32	38	- 24	1.1/2"	2"		42.0	113.0	79.6				
IM43610-32-24	51	- 32	2"	1.1/2"		32.1	117.0	63.7				
IM43610-32-32	51	- 32	2"	2"		42.0	113.0	79.6				
IM43610-40-40	63	- 40	2.1/2"	2.1/2"		51.5	126.5	107.9				
IM43610-48-48	76	- 48	3"	3"		62.5	167.0	131.9				

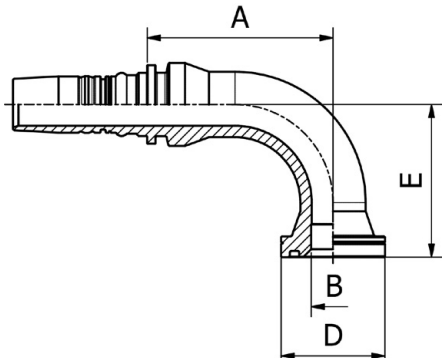
SAE STANDARD CONNECTIONS



IM43640

45° ISO / SAE
CODE 62 FLANGE
SAE J516 / ISO 12151-3
(STAINLESS STEEL)

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
IM43640-12-12	19	- 12	3/4"	3/4"		16.0	81.0	41.4	28.0			
IM43640-16-16	25	- 16	1"	1"		20.0	91.5	47.7	32.5			
IM43640-20-20	31	- 20	1.1/4"	1.1/4"		26.0	108.0	54.2	37.5			
IM43640-24-24	38	- 24	1.1/2"	1.1/2"		32.0	124.5	63.7	44.0			
IM43640-32-32	51	- 32	2"	2"		42.0	154.0	79.6	60.5			

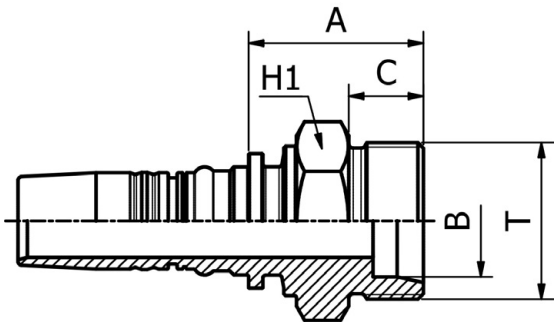


SAE STANDARD CONNECTIONS

IM43690

90° ISO / SAE
CODE 62 FLANGE
SAE J516 / ISO 12151-3
(STAINLESS STEEL)

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
IM43690-10-12	16	- 10	5/8"	3/4"		16.0	57.5	41.4	60.5			
IM43690-12-12	19	- 12	3/4"	3/4"		16.0	72.4	41.4	59.0			
IM43690-16-16	25	- 16	1"	1"		20.0	81.0	47.7	68.0			
IM43690-20-20	31	- 20	1.1/4"	1.1/4"		26.0	98.5	54.2	81.0			
IM43690-24-24	38	- 24	1.1/2"	1.1/2"		32.0	112.5	63.7	94.5			
IM43690-32-32	51	- 32	2"	2"		42.0	140.5	79.6	132.0			

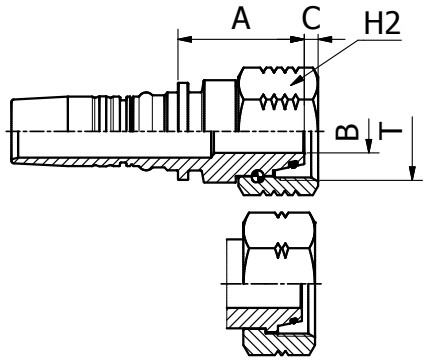


DIN STANDARD CONNECTIONS

IM31210

METRIC
MALE 24° CONE SEAT HEAVY DUTY
DIN 20066 / ISO 12151-2
(STAINLESS STEEL)

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	H1			
IM31210-10-30	16	- 10	5/8"	M 30X2	20.0	12.0	37.0	16.0	30.0			
IM31210-12-36	19	- 12	3/4"	M 36X2	25.0	14.5	43.5	18.0	36.0			
IM31210-16-42	25	- 16	1"	M 42X2	30.0	19.5	46.8	20.0	46.0			
IM31210-20-52	31	- 20	1.1/4"	M 52X2	38.0	25.0	55.0	22.0	55.0			

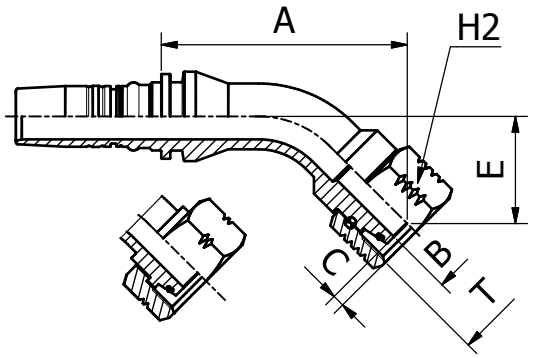


DIN STANDARD CONNECTIONS

IM41612/IM41613

METRIC
O-RING FEMALE 24° CONE HEAVY DUTY
DIN 20066 / ISO 12151-2
(STAINLESS STEEL)

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	H2			
IM41613-10-30	16	- 10	5/8"	M 30X2	20.0	12.0	37.0	3.5	36.0			
IM41613-12-36	19	- 12	3/4"	M 36X2	25.0	14.5	42.0	3.4	41.0			
IM41613-16-42	25	- 16	1"	M 42X2	30.0	19.5	46.5	5.3	50.0			
IM41613-20-52	31	- 20	1.1/4"	M 52X2	38.0	26.1	41.5	8.0	60.0			

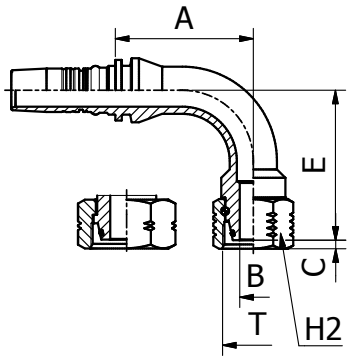


DIN STANDARD CONNECTIONS

IM41642/IM41643

45° METRIC
O-RING FEMALE SWEPT ELBOW 24° CONE
HEAVY DUTY
DIN 20066 / ISO 12151-2 (STAINLESS STEEL)

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	E	H2		
IM41643-10-30	16	- 10	5/8"	M 30X2	20.0	12.0	66.5	3.5	29.5	36.0		
IM41643-12-36	19	- 12	3/4"	M 36X2	25.0	14.5	81.0	3.4	33.5	41.0		
IM41643-16-42	25	- 16	1"	M 42X2	30.0	19.5	93.0	5.3	36.0	50.0		
IM41643-20-52	31	- 20	1.1/4"	M 52X2	38.0	26.1	110.0	8.0	40.0	60.0		



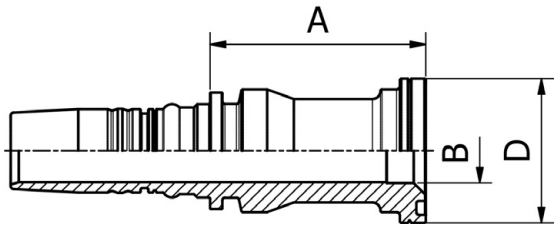
DIN STANDARD CONNECTIONS

IM41692/IM41693

90° METRIC
O-RING FEMALE SWEPT ELBOW 24° CONE
HEAVY DUTY
DIN 20066 / ISO 12151-2 (STAINLESS STEEL)

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	E	H2		
IM41693-10-30	16	- 10	5/8"	M 30X2	20.0	12.0	52.5	3.5	57.5	36.0		
IM41693-12-36	19	- 12	3/4"	M 36X2	25.0	14.5	67.0	3.4	67.5	41.0		
IM41693-16-42	25	- 16	1"	M 42X2	30.0	19.5	81.5	5.3	75.5	50.0		
IM41692-20-42	31	- 20	1.1/4"	M 42X2	30.0	19.1	103.5	6.1	90.0	50.0		
IM41693-20-52	31	- 20	1.1/4"	M 52X2	38.0	26.0	100.0	8.0	86.5	60.0		

SAE STANDARD CONNECTIONS

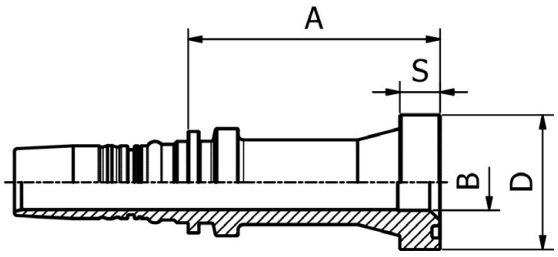


IM43310

ISO / SAE
CODE 61 FLANGE
SAE J516 / ISO 12151-3
(STAINLESS STEEL)

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D				
IM43310-12-12	19	- 12	3/4"	3/4"		16.0	60.0	38.0				
IM43310-16-16	25	- 16	1"	1"		20.0	66.5	44.6				
IM43310-20-20	31	- 20	1.1/4"	1.1/4"		26.1	75.0	51.0				
IM43310-24-24	38	- 24	1.1/2"	1.1/2"		32.1	80.5	60.5				
IM43310-32-32	51	- 32	2"	2"		42.0	83.0	71.6				

ORIGINAL EQUIPMENT CONNECTIONS

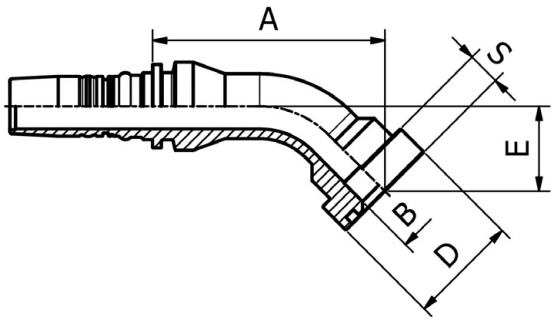


IM43910

STRAIGHT SUPERCAT SERIES FLANGE (STAINLESS STEEL)

PART. REF.	HOSE BORE		Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	S			
IM43910-12-12	19	- 12	3/4"	3/4"		16.0	77.0	41.5	14.3			
IM43910-16-16	25	- 16	1"	1"		20.0	89.5	47.7	14.3			
IM43910-20-20	31	- 20	1.1/4"	1.1/4"		26.0	95.0	54.0	14.3			
IM43910-24-24	38	- 24	1.1/2"	1.1/2"		32.1	99.0	63.6	14.3			
IM43910-32-32	51	- 32	2"	2"		42.0	114.0	79.3	14.3			

ORIGINAL EQUIPMENT CONNECTIONS

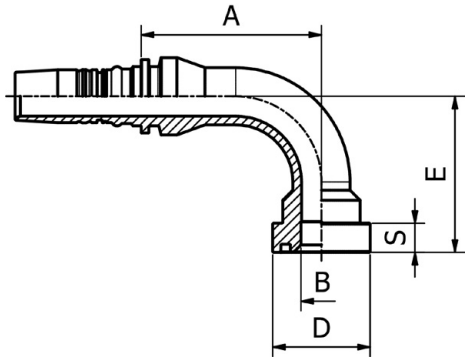


IM43940

45° SUPERCAT SERIES FLANGE (STAINLESS STEEL)

PART. REF.	HOSE BORE		Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	S		
IM43940-12-12	19	- 12	3/4"	3/4"		16.0	85.0	41.5	32.0	14.3		
IM43940-16-16	25	- 16	1"	1"		20.0	100.5	47.7	36.5	14.3		
IM43940-20-20	31	- 20	1.1/4"	1.1/4"		26.1	110.5	54.0	40.5	14.3		
IM43940-24-24	38	- 24	1.1/2"	1.1/2"		32.0	125.5	63.7	45.5	14.3		
IM43940-32-32	51	- 32	2"	2"		42.0	158.5	79.3	61.5	14.3		

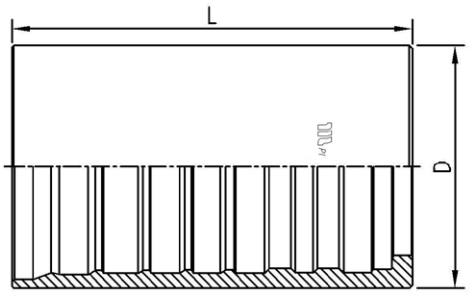
ORIGINAL EQUIPMENT CONNECTIONS



IM43990

90° SUPERCAT SERIES FLANGE (STAINLESS STEEL)

PART. REF.	HOSE BORE		Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	S		
IM43990-12-12	19	- 12	3/4"	3/4"		16.0	72.5	41.5	64.5	14.3		
IM43990-16-16	25	- 16	1"	1"		20.0	88.5	47.7	76.5	14.3		
IM43990-20-20	31	- 20	1.1/4"	1.1/4"		26.1	98.5	54.0	85.0	14.3		
IM43990-24-24	38	- 24	1.1/2"	1.1/2"		32.0	112.5	63.7	96.0	14.3		
IM43990-32-32	51	- 32	2"	2"		42.0	144.0	79.3	133.5	14.3		

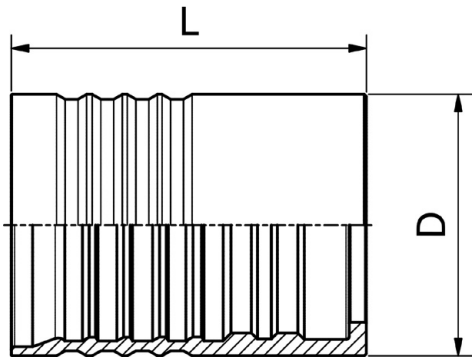


FERRULE

M02610

DOUBLE SKIVE FERRULE FOR HEAVY DUTY SPIRAL HOSES (8 PLY)

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch			D	L					
M02610-56	89	-56	3.1/2"			143.2	236.7					

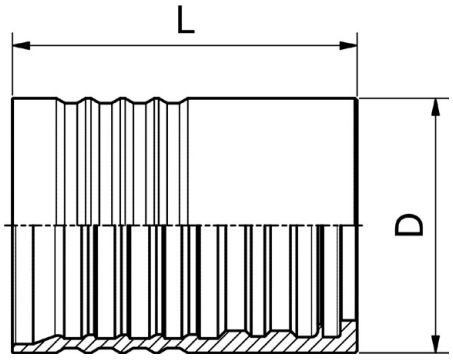


FERRULE

M02700

DOUBLE SKIVE FERRULE EXD.8WS

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch			D	L					
M02700-24	38	- 24	1.1/2"			74.0	104.2					
M02700-32	51	- 32	2"			89.0	122.0					
M02700-48	76	- 48	3"			122.0	165.0					

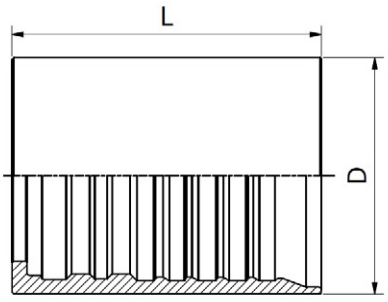


FERRULE

M02800

DOUBLE SKIVE FERRULE FOR HEAVY DUTY SPIRAL HOSES (8 PLY)

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch			D	L					
M02800-48	76	- 48	3"			122.0	165.0					



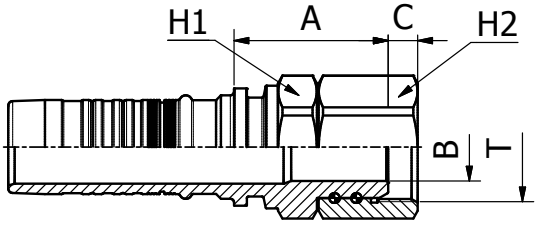
FERRULE

M02900

DOUBLE SKIVE FERRULE FOR HEAVY DUTY SPIRAL HOSES

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch			D	L					
M02900-24	38	- 24	1.1/2"			82.0	104.2					

BS STANDARD CONNECTIONS

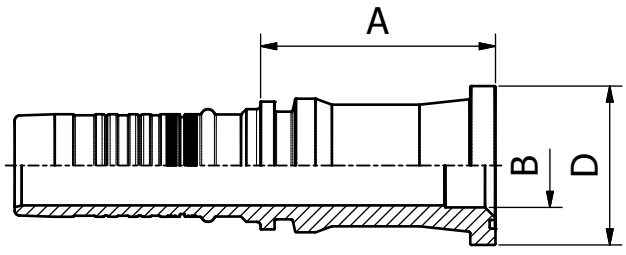


MB0514

BSP FEMALE 60° CONE BS5200 / ISO 12151-6

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1	H2		
MB0514-24-24	38	-24	1.1/2"	1.1/2" - 11		27	86	12,5	55	60		
MB0514-32-32	51	-32	2"	2" - 11		37	84	16,1	70	70		

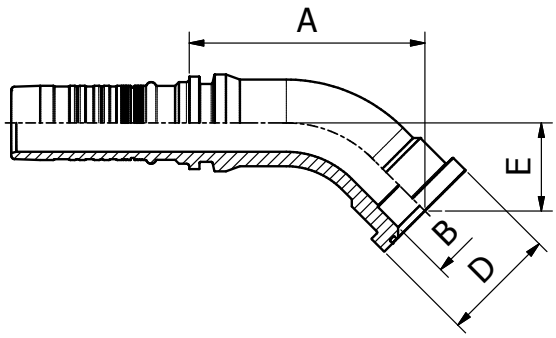
SAE STANDARD CONNECTIONS



MB3610

ISO / SAE CODE 62 FLANGE SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D				
MB3610-24-24	38	-24	1.1/2"	1.1/2"		32,1	102,5	63,7				
MB3610-32-32	51	-32	2"	2"		42	117,5	79,6				
MB3610-48-48	76	-48	3"	3"		62,5	169	131,9				

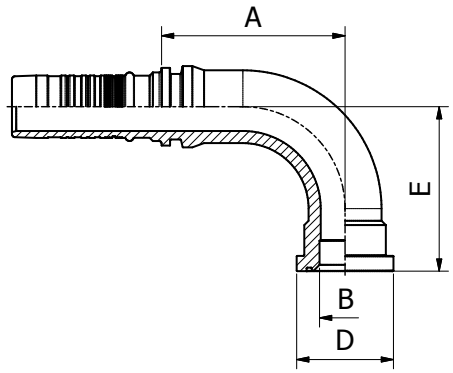


SAE STANDARD CONNECTIONS

MB3640

ISO / SAE
45° CODE 62 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
MB3640-24-24	38	-24	1.1/2"	1.1/2"		32,1	126,5	63,7	46			
MB3640-32-32	51	-32	2"	2"		42	163	79,6	61			



SAE STANDARD CONNECTIONS

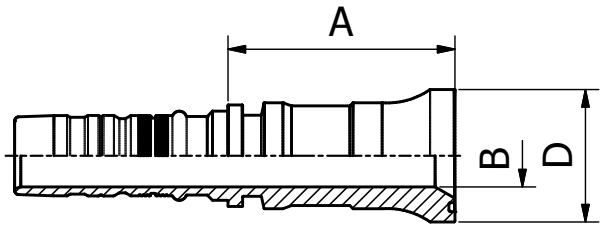
MB3690

ISO / SAE
90°CODE 62 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
MB3690-24-24	38	-24	1.1/2"	1.1/2"		32,1	119	63,7	104			
MB3690-32-32	51	-32	2"	2"		42	151	79,6	135,5			

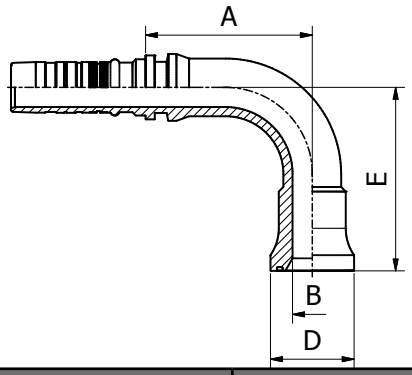
XTRAFLANGE

MB8510



XTRAFLANGE/62
(SAE J518 CODE 62 ISO 6162-2
PORT COMPATIBLE)

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D				
MB8510-24-24	38	-24	1.1/2"	1.1/2"		30	109	63,7				
MB8510-32-32	51	-32	2"	2"		40	123	79,6				
MB8510-48-48	76	-48	3"	3"		62,5	152	128				



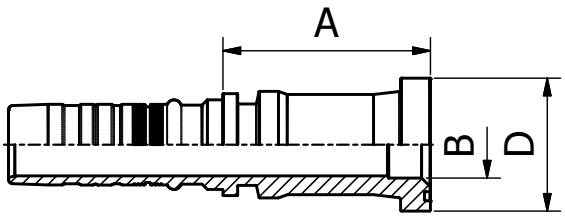
XTRAFLANGE

MB8590

90° XTRAFLANGE/62 (SAE J518 CODE 62 ISO 6162-2 PORT COMPATIBLE)

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
MB8590-24-24	38	-24	1.1/2"	1.1/2"		30	127	63,7	140			
MB8590-32-32	51	-32	2"	2"		39	152	79,6	178			

ORIGINAL EQUIPMENT CONNECTIONS

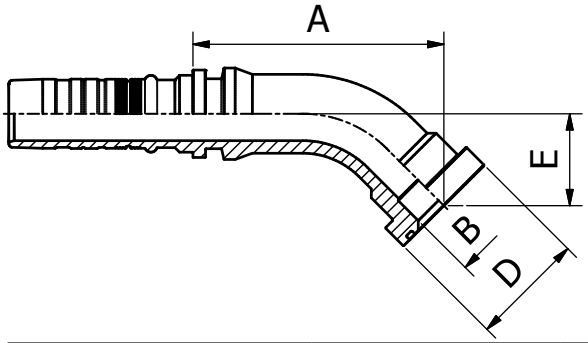


MB3910

STRAIGHT SUPERCAT FLANGE

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	S			
MB3910-24-24	38	-24	1.1/2"	1.1/2"		32.0	99.0	63.7	14.3			

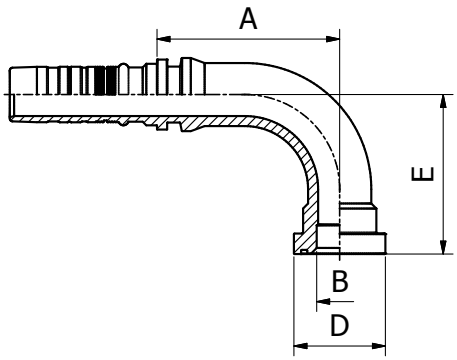
ORIGINAL EQUIPMENT CONNECTIONS



MB3940

45° SUPERCAT FLANGE

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	S		
MB3940-24-24	38	-24	1.1/2"	1.1/2"		32.0	140.0	63.7	51.5	14.3		



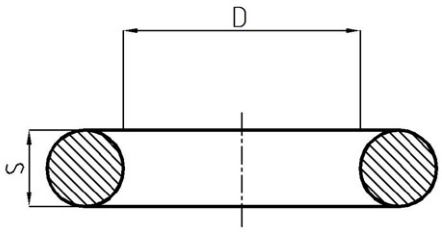
ORIGINAL EQUIPMENT CONNECTIONS

MB3990

90° SUPERCAT FLANGE

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	S		
MB3990-24-24	38	-24	1.1/2"	1.1/2"		32.0	127.0	63.7	111.0	14.3		

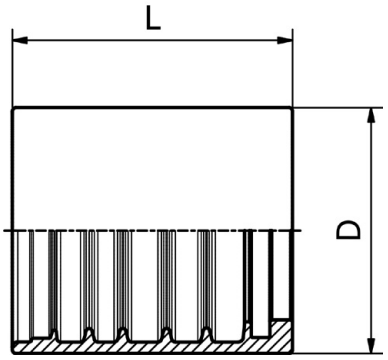
O-RING



JO29

INTERLOCK SUPER O-RING

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch			D	S					
JO29757026	76	- 48	3"			69.5	2.6					
JO29878226	89	- 56	3.1/2"			82.2	2.6					
JO291029535	102	-64	4"			94.8	3.5					

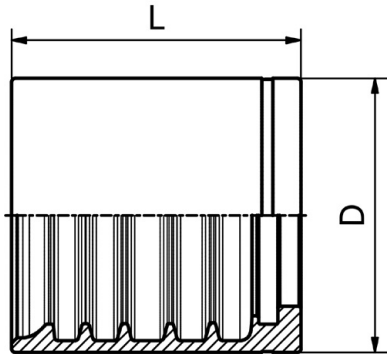


FERRULE

M05400

NO-SKIVE FERRULE
FOR HEAVY DUTY SPIRAL HOSES (4 PLY)

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch			D	L					
M05400-10	16	- 10	5/8"			40.0	44.3					
M05400-12	19	- 12	3/4"			43.8	53.3					
M05400-16	25	- 16	1"			52.0	64.3					
M05400-20	31	- 20	1.1/4"			59.3	72.0					
M05400-24	38	- 24	1.1/2"			68.5	78.0					
M05400-32	51	- 32	2"			84.6	97.1					
M05400-40	63	- 40	2.1/2"			97.0	116.0					
M05400-48	76	- 48	3"			109.8	124.0					
M05400-56	89	- 56	3.1/2"			127.7	123.5					
M05400-64	102	- 64	4"			145.0	126.5					

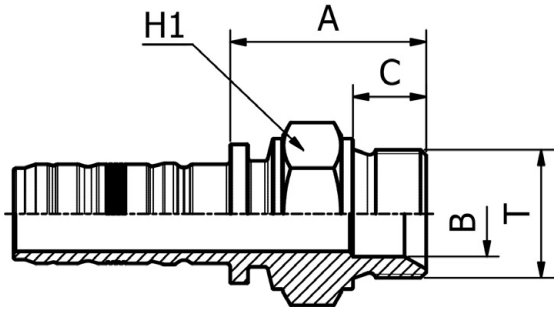


FERRULE

M05500

NO-SKIVE FERRULE
FOR HEAVY DUTY SPIRAL HOSES (4-6 PLY)

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch			D	L					
M05500-24	38	- 24	1.1/2"			75.0	79.0					
M05500-20	31	- 20	1.1/4"			66.0	70.0					
M05500-32	51	- 32	2"			90.0	98.1					

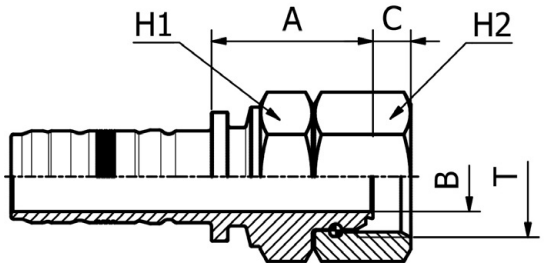


BS STANDARD CONNECTIONS

M70510

BSP
MALE PARALLEL 60° CONE SEAT
BS5200 / ISO 12151-6

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1			
M70510-12-12	19	- 12	3/4"	3/4" - 14		16.8	43.5	16.0	32.0			
M70510-12-16	19	- 12	3/4"	1" - 11		22.2	49.5	19.0	41.0			
M70510-16-16	25	- 16	1"	1" - 11		22.2	51.0	19.0	41.0			
M70510-16-20	25	- 16	1"	1.1/4" - 11		28.5	56.0	20.0	50.0			
M70510-20-20	31	- 20	1.1/4"	1.1/4" - 11		28.5	56.5	20.0	50.0			
M70510-24-24	38	- 24	1.1/2"	1.1/2" - 11		33.5	60.5	22.0	55.0			
M70510-32-32	51	- 32	2"	2" - 11		42.0	64.0	25.0	70.0			

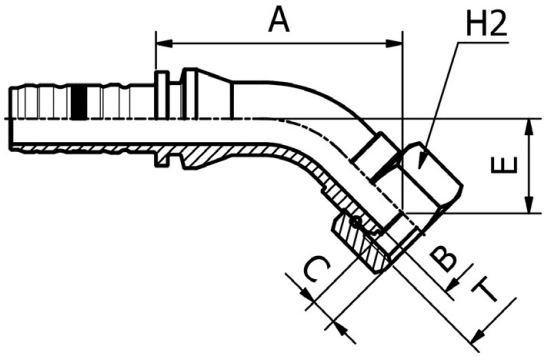


BS STANDARD CONNECTIONS

M80812

BSP
O-RING FEMALE 60° CONE
BS5200 / ISO 12151-6

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1	H2		
M80812-12-12	19	- 12	3/4"	3/4" - 14		14.5	39.5	8.5	32.0	32.0		
M80812-12-16	19	- 12	3/4"	1" - 11		19.5	44.0	10.6	41.0	41.0		
M80812-16-12	25	- 16	1"	3/4" - 14		15.0	44.5	8.5	41.0	32.0		
M80812-16-16	25	- 16	1"	1" - 11		19.5	45.5	10.6	41.0	41.0		
M80812-16-20	25	- 16	1"	1.1/4" - 11		26.1	50.5	10.5	50.0	50.0		
M80812-20-16	31	- 20	1.1/4"	1" - 11		19.0	48.0	10.6	50.0	41.0		
M80812-20-20	31	- 20	1.1/4"	1.1/4" - 11		26.1	50.5	10.5	50.0	50.0		
M80812-20-24	31	- 20	1.1/4"	1.1/2" - 11		32.1	50.0	12.5	50.0	60.0		
M80812-24-24	38	- 24	1.1/2"	1.1/2" - 11		32.1	52.0	12.5	60.0	60.0		
M80812-24-20	38	- 24	1.1/2"	1.1/4" - 11		26.1	52.0	10.5	55.0	50.0		
M80812-32-32	51	- 32	2"	2" - 11		42.0	53.5	16.1	70.0	70.0		

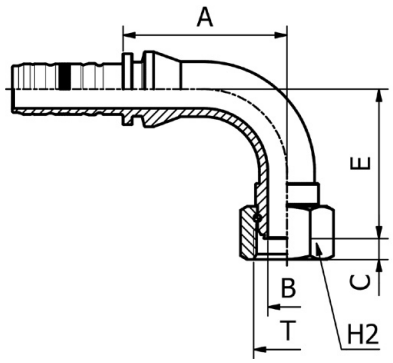


BS STANDARD CONNECTIONS

M80842

45° BSP
O-RING FEMALE SWEPT ELBOW 60° CONE
BS5200 / ISO 12151-6

PART. REF.	HOSE BORE		Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M80842-12-12	19	- 12	3/4"	3/4" - 14		14.5	82.5	8.5	29.0	32.0		
M80842-12-16	19	- 12	3/4"	1" - 11		19.5	84.0	10.6	30.0	41.0		
M80842-16-12	25	- 16	1"	3/4" - 14		15.0	106.5	8.5	36.0	32.0		
M80842-16-16	25	- 16	1"	1" - 11		19.5	95.0	10.6	36.5	41.0		
M80842-16-16028	25	- 16	1"	1" - 11		19.5	84.0	10.6	28.0	41.0		
M80842-16-20	25	- 16	1"	1.1/4" - 11		26.1	109.5	10.5	38.0	50.0		
M80842-20-16	31	- 20	1.1/4"	1" - 11		19.5	102.0	10.6	36.5	41.0		
M80842-20-20	31	- 20	1.1/4"	1.1/4" - 11		26.0	99.0	10.5	39.0	50.0		
M80842-20-24	31	- 20	1.1/4"	1.1/2" - 11		32.0	114.0	12.5	54.0	60.0		
M80842-24-24	38	- 24	1.1/2"	1.1/2" - 11		32.0	122.5	12.5	45.0	60.0		
M80842-32-32	51	- 32	2"	2" - 11		42.0	155.0	16.1	66.0	70.0		



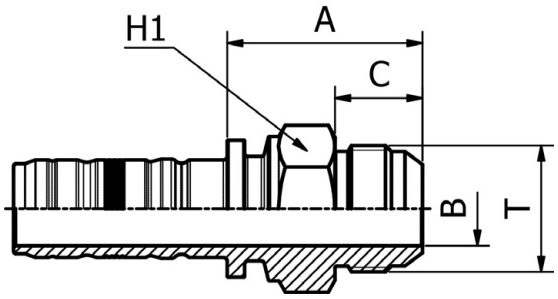
BS STANDARD CONNECTIONS

M80892

90° BSP
O-RING FEMALE SWEPT ELBOW 60° CONE
BS5200 / ISO 12151-6

PART. REF.	HOSE BORE		Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M80892-12-12	19	- 12	3/4"	3/4" - 14		14.5	73.5	8.5	60.0	32.0		
M80892-12-12050	19	- 12	3/4"	3/4" - 14		14.5	67.5	8.5	50.0	32.0		
M80892-12-16	19	- 12	3/4"	1" - 11		19.5	73.5	10.6	62.0	41.0		
M80892-16-12	25	- 16	1"	3/4" - 14		15.0	90.0	8.5	70.0	32.0		
M80892-16-16	25	- 16	1"	1" - 11		19.5	83.0	10.6	76.0	41.0		
M80892-16-16058	25	- 16	1"	1" - 11		19.5	74.5	10.6	58.5	41.0		
M80892-16-20	25	- 16	1"	1.1/4" - 11		26.1	96.0	10.5	78.5	50.0		
M80892-20-16	31	- 20	1.1/4"	1" - 11		19.5	90.0	10.6	76.0	41.0		
M80892-20-20	31	- 20	1.1/4"	1.1/4" - 11		26.0	88.0	10.5	83.5	50.0		
M80892-20-24	31	- 20	1.1/4"	1.1/2" - 11		32.0	88.0	12.5	92.0	60.0		
M80892-24-24	38	- 24	1.1/2"	1.1/2" - 11		32.0	103.0	12.5	98.5	60.0		
M80892-32-32	51	- 32	2"	2" - 11		42.0	135.9	16.1	140.5	70.0		

SAE STANDARD CONNECTIONS

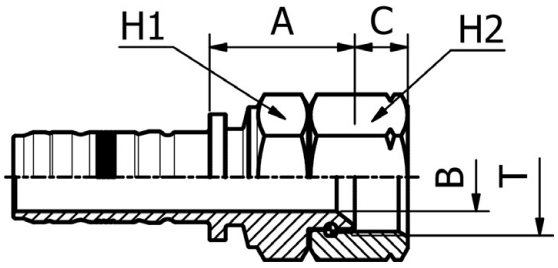


M72510

JIC
MALE 37° CONE
SAE J516 / ISO 12151-5

PART. REF.	HOSE BORE		Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1			
M72510-12-12	19	- 12	3/4"	1.1/16" - 12		14.5	44.5	22.0	30.0			
M72510-16-16	25	- 16	1"	1.5/16" - 12		19.5	51.5	23.0	38.0			
M72510-20-20	31	- 20	1.1/4"	1.5/8" - 12		26.1	56.0	24.3	46.0			
M72510-24-24	38	- 24	1.1/2"	1.7/8" - 12		32.1	60.0	27.5	50.0			
M72510-32-32	51	- 32	2"	2.1/2" - 12		42.0	75.5	34.0	65.0			

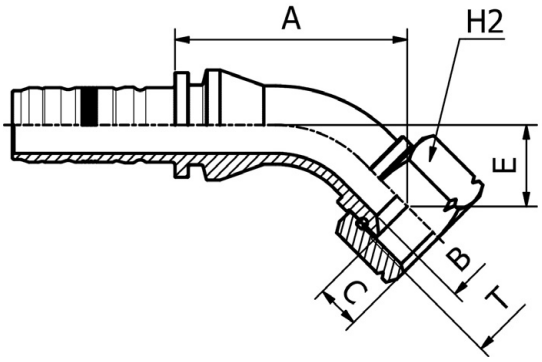
SAE STANDARD CONNECTIONS



M82712

JIC
FEMALE 37° CONE SEAT DOUBLE HEXAGON
SAE J516 / ISO 12151-5
(THRUST-WIRE NUT)

PART. REF.	HOSE BORE		Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1	H2		
M82712-12-12	19	- 12	3/4"	1.1/16" - 12		14.5	36.5	14.2	32.0	32.0		
M82712-12-16	19	- 12	3/4"	1.5/16" - 12		19.5	36.5	15.2	32.0	41.0		
M82712-16-16	25	- 16	1"	1.5/16" - 12		19.5	41.5	15.2	41.0	41.0		
M82712-16-20	25	- 16	1"	1.5/8" - 12		26.1	46.5	16.2	41.0	50.0		
M82712-20-20	31	- 20	1.1/4"	1.5/8" - 12		26.1	51.5	16.2	50.0	50.0		
M82712-20-24	31	- 20	1.1/4"	1.7/8" - 12		32.0	54.5	18.8	55.0	60.0		
M82712-24-24	38	- 24	1.1/2"	1.7/8" - 12		32.1	54.5	18.8	55.0	60.0		
M82712-32-32	51	- 32	2"	2.1/2" - 12		42.0	56.0	24.0	65.0	75.0		

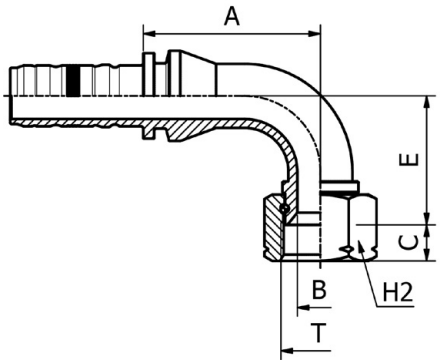


SAE STANDARD CONNECTIONS

M82542

45° JIC
FEMALE SWEPT ELBOW 37° CONE SEAT
SAE J516 / ISO 12151-5

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M82542-12-12	19	- 12	3/4"	1.1/16" - 12		14.5	75.0	14.2	22.5	32.0		
M82542-16-16	25	- 16	1"	1.5/16" - 12		19.5	81.5	15.2	26.0	41.0		
M82542-20-20	31	- 20	1.1/4"	1.5/8" - 12		26.0	101.0	16.2	41.5	50.0		
M82542-24-24	38	- 24	1.1/2"	1.7/8" - 12		32.1	121.5	18.8	48.5	60.0		
M82542-32-32	51	- 32	2"	2.1/2" - 12		42.0	162.0	24.0	63.5	75.0		

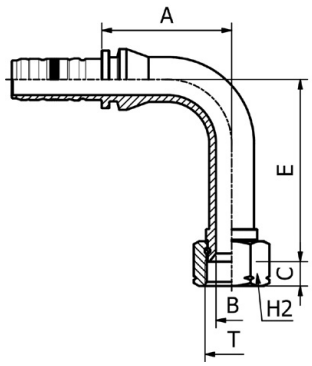


SAE STANDARD CONNECTIONS

M82592

90° JIC
FEMALE SWEPT ELBOW 37° CONE SEAT
SAE J516 / ISO 12151-5

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M82592-12-16	19	- 12	3/4"	1.5/16" - 12		19.8	73.5	15.2	57.5	41.0		
M82592-12-12	19	- 12	3/4"	1.1/16" - 12		14.5	67.5	14.2	47.5	32.0		
M82592-16-12	25	- 16	1"	1.1/16" - 12		14.5	76.5	14.2	47.5	32.0		
M82592-16-16	25	- 16	1"	1.5/16" - 12		19.5	74.5	15.2	55.5	41.0		
M82592-20-20	31	- 20	1.1/4"	1.5/8" - 12		26.0	88.0	16.2	86.5	50.0		
M82592-20-24	31	- 20	1.1/4"	1.7/8" - 12		32.0	88.0	18.8	90.5	60.0		
M82592-24-24	38	- 24	1.1/2"	1.7/8" - 12		32.1	105.0	18.8	101.0	60.0		
M82592-32-32	51	- 32	2"	2.1/2" - 12		42.0	145.0	24.0	139.0	75.0		

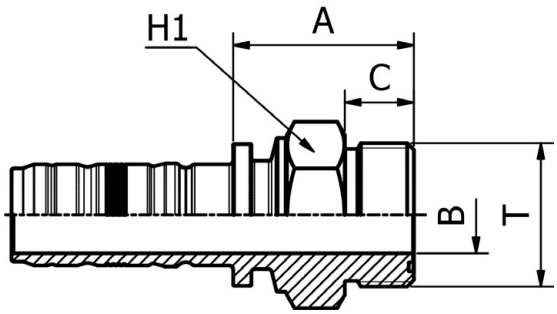


SAE STANDARD CONNECTIONS

M84792

90° JIC
FEMALE LONG DROP ELBOW 37° CONE SEAT
SAE J516 / ISO 12151-5

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M84792-12-12	19	- 12	3/4"	1.1/16" - 12		14.5	73.5	14.2	94.5	32.0		
M84792-16-16	25	- 16	1"	1.5/16" - 12		19.5	81.0	15.2	114.0	41.0		
M84792-20-20	31	- 20	1.1/4"	1.5/8" - 12		26.0	88.0	16.2	129.0	50.0		
M84792-24-24	38	- 24	1.1/2"	1.7/8" - 12		32.1	105.0	18.8	141.0	60.0		
M84792-32-32	38	- 24	1.1/2"	2.1/2" - 12		42.0	145.0	24.0	222.0	75.0		

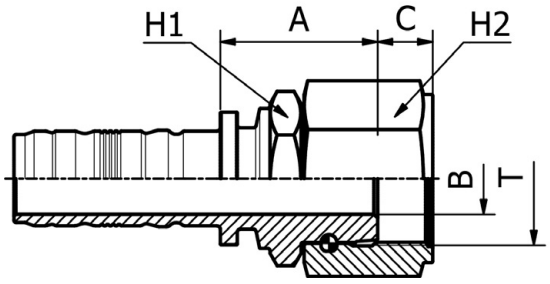


SAE STANDARD CONNECTIONS

M72410

ORFS
MALE
SAE J516 / ISO 12151-1

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1			
M72410-12-12	19	- 12	3/4"	1.3/16" - 12		14.5	41.0	17.0	32.0			
M72410-16-16	25	- 16	1"	1.7/16" - 12		19.5	46.0	17.5	41.0			
M72410-20-20	31	- 20	1.1/4"	1.11/16" - 12		26.0	50.5	17.5	46.0			
M72410-24-24	38	- 24	1.1/2"	2" - 12		32.0	53.0	17.5	55.0			

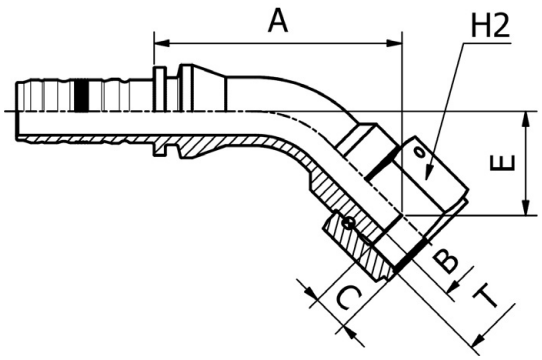


SAE STANDARD CONNECTIONS

M82412

ORFS
FEMALE
SAE J516/ISO 12151.1

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1	H2		
M82412-12-12	19	- 12	3/4"	1.3/16" - 12		14.5	38.0	14.1	32.0	36.0		
M82412-12-16	19	- 12	3/4"	1.7/16" - 12		19.5	42.0	15.0	41.0	46.0		
M82412-16-16	25	- 16	1"	1.7/16" - 12		19.5	43.0	15.0	41.0	46.0		
M82412-20-20	31	- 20	1.1/4"	1.11/16" - 12		25.0	52.5	15.1	50.0	55.0		
M82412-24-24	38	- 24	1.1/2"	2" - 12		30.5	55.0	15.0	60.0	60.0		

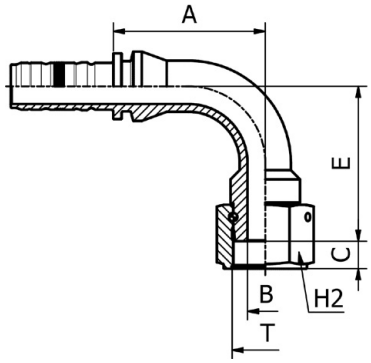


SAE STANDARD CONNECTIONS

M82442

45° ORFS
FEMALE SWEPT ELBOW SAE
J516 / ISO 12151-1

PART. REF.	HOSE BORE		Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M82442-12-12	19	- 12	3/4"	1.3/16" - 12		14.5	90.0	14.1	36.0	36.0		
M82442-12-16	19	- 12	3/4"	1.7/16" - 12		19.5	90.5	15.0	36.5	46.0		
M82442-16-16	25	- 16	1"	1.7/16" - 12		19.5	101.0	15.0	42.5	46.0		
M82442-20-20	31	- 20	1.1/4"	1.11/16" - 12		25.0	120.0	15.1	49.5	55.0		
M82442-24-24	38	- 24	1.1/2"	2" - 12		32.0	123.5	15.0	50.5	60.0		

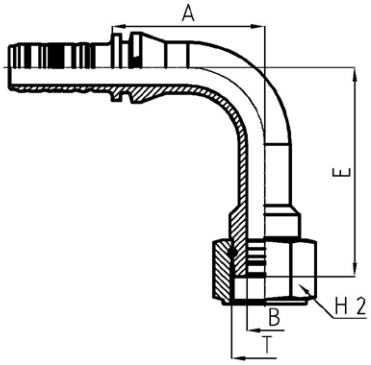


SAE STANDARD CONNECTIONS

M82492

90° ORFS
FEMALE SWEPT ELBOW
SAE J516 / ISO 12151-1

PART. REF.	HOSE BORE		Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M82492-12-12	19	- 12	3/4"	1.3/16" - 12		14.5	73.5	14.1	70.5	36.0		
M82492-12-16	19	- 12	3/4"	1.7/16" - 12		19.5	86.0	15.0	71.0	46.0		
M82492-16-12	25	- 16	1"	1.3/16" - 12		14.5	89.5	14.1	70.5	36.0		
M82492-16-16	25	- 16	1"	1.7/16" - 12		19.5	83.0	15.0	84.5	46.0		
M82492-20-20	31	- 20	1.1/4"	1.11/16" - 12		25.0	99.0	15.1	98.0	55.0		
M82492-24-24	38	- 24	1.1/2"	2" - 12		32.0	105.0	15.0	104.0	60.0		



SAE STANDARD CONNECTIONS

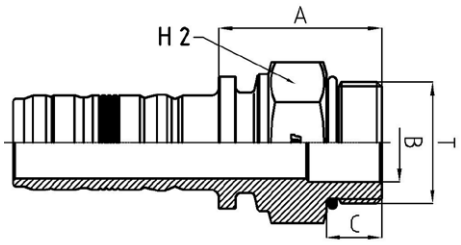
M84492

90° ORFS
FEMALE LONG DROP ELBOW
SAE J516 / ISO 12151-1
(THURST- WIRE NUT)

PART. REF.	HOSE BORE		Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
M84492-12-12	19	- 12	3/4"	1.3/16" - 12		14.5	73.5	14.1	96.0	36.0		
M84492-16-16	25	- 16	1"	1.7/16" - 12		19.5	83.0	15.0	114.0	46.0		
M84492-20-20	31	- 20	1.1/4"	1.11/16" - 12		25.0	99.0	15.1	129.0	55.0		

SAE STANDARD CONNECTIONS

M73010

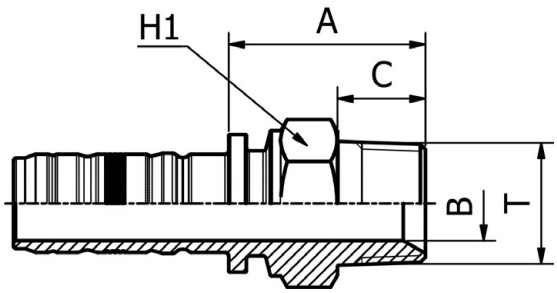


SAE
MALE O-RING BOSS TYPE
SAE J516 / ISO 11926

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1			
M73010-12-12	19	- 12	3/4"	1.1/16" - 12		15.5	42.5	15.1	32.0			
M73010-16-16	25	- 16	1"	1.5/16" - 12		21.5	44.5	15.1	38.0			
M73010-20-20	31	- 20	1.1/4"	1.5/8" - 12		27.5	47.5	15.1	46.0			

SAE STANDARD CONNECTIONS

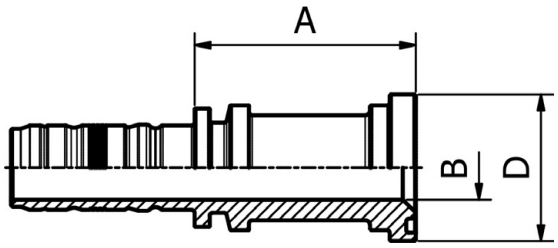
M72810



NPTF
MALE 60° CONE SEAT
SAE J516/J514

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1			
M72810-12-12	19	- 12	3/4"	3/4" - 14		16.0	41.5	19.2	30.0			
M72810-16-16	25	- 16	1"	1" - 11,5		19.5	52.0	24.2	38.0			
M72810-20-20	31	- 20	1.1/4"	1.1/4" - 11,5		25.0	61.5	25.0	46.0			
M72810-24-24	38	- 24	1.1/2"	1.1/2" - 11,5		30.5	60.5	26.0	50.0			
M72810-32-32	51	- 32	2"	2" - 11,5		41.0	67.5	26.5	65.0			
M72810-48-48	76	- 48	3"	3" - 8		62.5	121.5	51.5	100.0			

SAE STANDARD CONNECTIONS

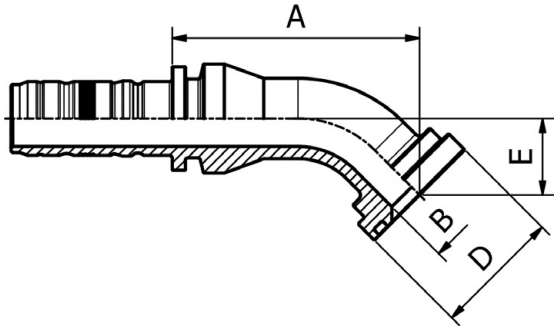


M83311

ISO / SAE
CODE 61 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE		Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D				
M83311-12-12	19	- 12	3/4"	3/4"		14.5	66.5	38.0				
M83311-12-16	19	- 12	3/4"	1"		19.5	52.5	44.6				
M83311-16-12	25	- 16	1"	3/4"		14.5	67.5	38.0				
M83311-16-16	25	- 16	1"	1"		19.5	67.5	44.6				
M83311-16-20	25	- 16	1"	1.1/4"		26.0	53.5	51.0				
M83311-20-16	31	- 20	1.1/4"	1"		19.5	69.0	44.6				
M83311-20-20	31	- 20	1.1/4"	1.1/4"		26.0	75.0	51.0				
M83311-20-24	31	- 20	1.1/4"	1.1/2"		32.0	60.0	60.5				
M83311-24-24	38	- 24	1.1/2"	1.1/2"		32.0	78.5	60.5				
M83311-24-32	38	- 24	1.1/2"	2"		42.0	60.5	71.6				
M83311-32-32	51	- 32	2"	2"		42.0	82.5	71.6				
M83311-40-40	63	- 40	2.1/2"	2.1/2"		51.5	93.0	84.3				
M83311-48-48	76	- 48	3"	3"		62.5	88.5	101.6				
M83311-56-56	89	- 56	3.1/2"	3.1/2"		76.0	98.5	114.3				
M83311-64-64	102	- 64	4"	4"		89.0	105.0	127.0				

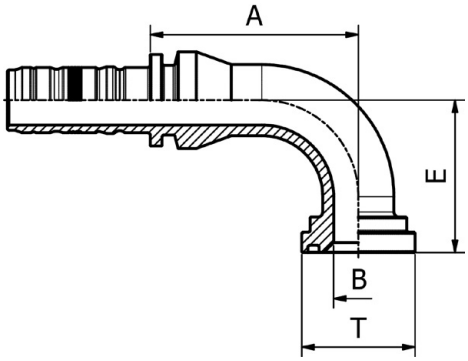
SAE STANDARD CONNECTIONS



M83341

45° ISO / SAE
CODE 61 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE		Flange		DIMENSIONS mm							
	DN	Dash	inch	inch		B	A	D	E			
M83341-12-12	19	- 12	3/4"	3/4"		16.0	78.0	38.0	24.5			
M83341-12-16	19	- 12	3/4"	1"		19.5	78.0	44.6	24.5			
M83341-16-12	25	- 16	1"	3/4"		16.0	90.5	38.0	24.5			
M83341-16-16	25	- 16	1"	1"		19.5	86.5	44.6	26.5			
M83341-16-20	25	- 16	1"	1.1/4"		26.0	92.0	51.0	32.0			
M83341-20-16	31	- 20	1.1/4"	1"		19.5	90.5	44.6	26.5			
M83341-20-20	31	- 20	1.1/4"	1.1/4"		26.0	87.5	51.0	29.0			
M83341-20-24	31	- 20	1.1/4"	1.1/2"		32.0	88.5	60.5	30.0			
M83341-24-24	38	- 24	1.1/2"	1.1/2"		32.0	102.5	60.5	38.0			
M83341-24-32	38	- 24	1.1/2"	2"		42.0	102.5	71.6	38.0			
M83341-32-32	51	- 32	2"	2"		42.0	143.5	71.6	52.0			
M83341-40-40	63	- 40	2.1/2"	2.1/2"		49.2	131.0	84.3	44.5			
M83341-48-48	76	- 48	3"	3"		59.0	147.0	101.6	53.0			

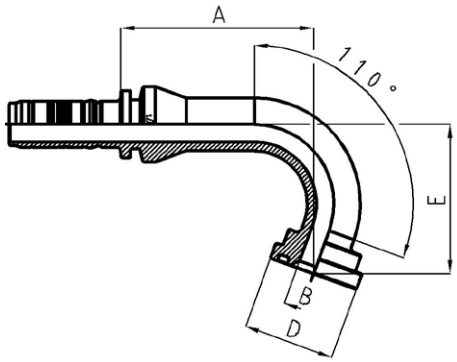


SAE STANDARD CONNECTIONS

M83391

90° ISO / SAE
CODE 61 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M83391-12-12	19	- 12	3/4"	3/4"		16.0	72.5	38.0	58.0			
M83391-12-16	19	- 12	3/4"	1"		19.5	72.5	44.6	70.0			
M83391-12-16054	19	- 12	3/4"	1"		19.5	72.5	44.6	54.0			
M83391-16-12	25	- 16	1"	3/4"		16.0	85.0	38.0	58.0			
M83391-16-16	25	- 16	1"	1"		19.5	82.0	44.6	60.0			
M83391-16-20	25	- 16	1"	1.1/4"		26.0	82.0	51.0	68.0			
M83391-20-24	31	- 20	1.1/4"	1.1/2"		32.0	85.0	60.5	69.0			
M83391-20-16	31	- 20	1.1/4"	1"		19.5	86.0	44.6	60.0			
M83391-20-20	31	- 20	1.1/4"	1.1/4"		26.0	85.0	51.0	67.0			
M83391-24-24	38	- 24	1.1/2"	1.1/2"		32.0	96.5	60.5	81.0			
M83391-24-32	38	- 24	1.1/2"	2"		42.0	101.5	71.6	84.0			
M83391-32-32	51	- 32	2"	2"		42.0	135.5	71.6	120.0			
M83391-40-40	63	- 40	2.1/2"	2.1/2"		49.2	128.0	84.3	118.0			
M83391-48-48	76	- 48	3"	3"		59.0	144.5	101.6	140.0			
M83391-56-56	89	- 56	3.1/2"	3.1/2"		73.7	164.0	114.3	160.0			



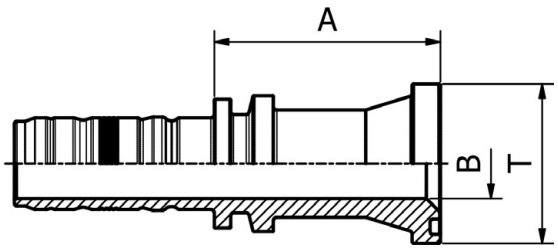
SAE STANDARD CONNECTIONS

M83301...P

110° ISO / SAE
CODE 61 FLANGE

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M83301-12-12P	19	- 12	3/4"	3/4"		16.0	80.0	38.0	62.0			
M83301-16-16P	25	- 16	1"	1"		19.5	91.5	44.6	79.0			
M83301-20-20P	31	- 20	1.1/4"	1.1/4"		26.0	121.5	51.0	91.0			
M83301-24-24P	38	- 24	1.1/2"	1.1/2"		32.0	124.8	60.5	109.0			
M83301-32-32P	51	- 32	2"	2"		42.0	146.5	71.6	140.0			

SAE STANDARD CONNECTIONS

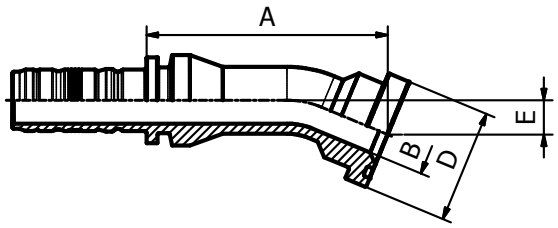


M83611

ISO / SAE
CODE 62 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE		Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D				
M83611-10-12	16	- 10	5/8"	3/4"		16.0	52.5	41.1				
M83611-12-12	19	- 12	3/4"	3/4"		14.5	53.5	41.4				
M83611-12-16	19	- 12	3/4"	1"		19.5	59.5	47.7				
M83611-16-12	25	- 16	1"	3/4"		16.0	62.5	41.4				
M83611-16-16	25	- 16	1"	1"		19.5	63.5	47.7				
M83611-16-20	25	- 16	1"	1.1/4"		26.0	70.0	54.2				
M83611-20-16	31	- 20	1.1/4"	1"		19.5	62.0	47.7				
M83611-20-20	31	- 20	1.1/4"	1.1/4"		26.0	66.0	54.2				
M83611-20-24	31	- 20	1.1/4"	1.1/2"		32.0	74.5	63.7				
M83611-24-24	38	- 24	1.1/2"	1.1/2"		32.0	74.5	63.7				
M83611-24-32	38	- 24	1.1/2"	2"		42.0	88.5	79.6				
M83611-24-20	38	- 24	1.1/2"	1.1/4"		26.0	66.5	54.2				
M83611-32-24	51	- 32	2"	1.1/2"		32.0	91.5	63.7				

SAE STANDARD CONNECTIONS

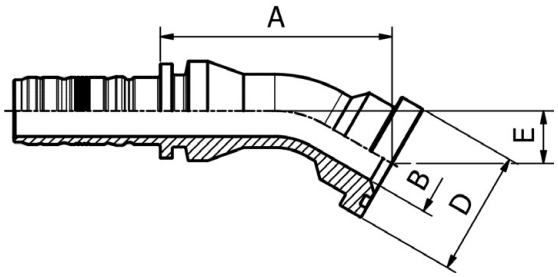


M83621

22.5° ISO / SAE
CODE 62 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE		Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M83621-12-12	19	-12	3/4"	3/4"		16.0	89.5	41.4	12.0			
M83621-16-16	25	-16	1"	1"		19.5	101.0	47.7	14.5			
M83621-20-20	31	-20	1.1/4"	1.1/4"		26.0	107.0	54.2	17.0			
M83621-24-24	38	-24	1.1/2"	1.1/2"		32.0	122.0	63.7	19.5			
M83621-32-32	51	-32	2"	2"		42.0	164.0	79.5	25.0			

SAE STANDARD CONNECTIONS

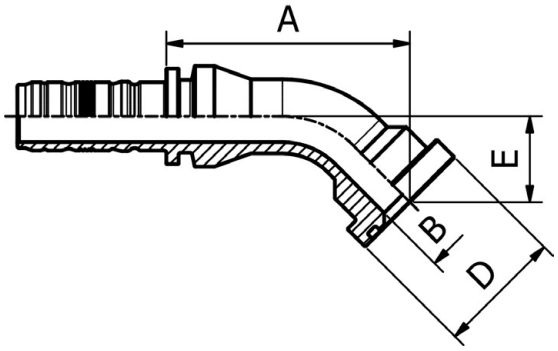


M83631

30° ISO / SAE
CODE 62 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M83631-12-12	19	- 12	3/4"	3/4"		16.0	78.5	41.4	17.5			
M83631-16-16	25	- 16	1"	1"		19.5	89.0	47.7	20.0			
M83631-20-20	31	- 20	1.1/4"	1.1/4"		26.0	90.5	54.2	22.5			
M83631-24-24	38	- 24	1.1/2"	1.1/2"		32.0	104.5	63.7	27.0			

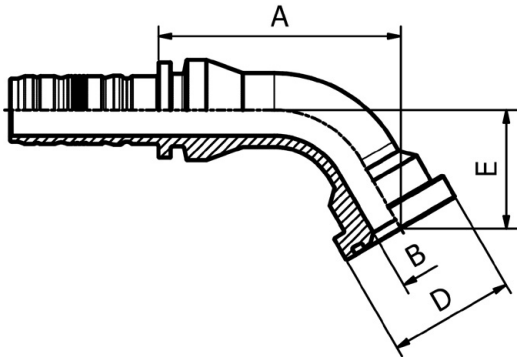
SAE STANDARD CONNECTIONS



M83641

45° ISO / SAE
CODE 62 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M83641-12-12	19	- 12	3/4"	3/4"		16.0	81.5	41.4	28.0			
M83641-12-16	19	- 12	3/4"	1"		19.5	85.5	47.7	32.5			
M83641-16-12	25	- 16	1"	3/4"		16.0	87.5	41.4	28.0			
M83641-16-16	25	- 16	1"	1"		19.5	92.0	47.7	32.5			
M83641-16-20	25	- 16	1"	1.1/4"		26.0	97.0	54.2	37.0			
M83641-20-16	31	- 20	1.1/4"	1"		19.5	95.5	47.7	31.5			
M83641-20-20	31	- 20	1.1/4"	1.1/4"		26.0	96.5	54.2	38.0			
M83641-20-24	31	- 20	1.1/4"	1.1/2"		32.0	104.5	63.7	44.5			
M83641-24-20	38	- 24	1.1/2"	1.1/4"		26.0	110.5	54.2	38.0			
M83641-24-24	38	- 24	1.1/2"	1.1/2"		32.0	109.5	63.7	44.0			
M83641-24-32	38	- 24	1.1/2"	2"		42.0	121.5	79.6	56.0			
M83641-32-32	51	- 32	2"	2"		42.0	148.0	79.6	59.0			

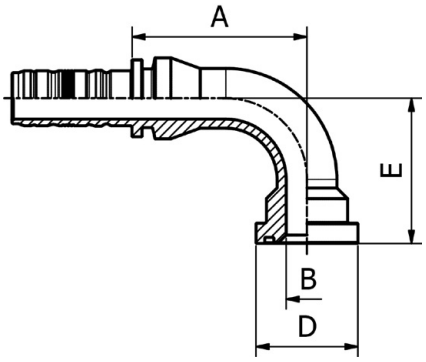


SAE STANDARD CONNECTIONS

M83661

60° ISO / SAE
CODE 62 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE		Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M83661-12-12	19	- 12	3/4"	3/4"		16.0	81.0	41.4	39.0			
M83661-12-16	19	- 12	3/4"	1"		19.5	84.0	47.7	44.0			
M83661-16-16	25	- 16	1"	1"		19.5	92.0	47.7	45.0			
M83661-20-20	31	- 20	1.1/4"	1.1/4"		26.0	97.5	54.2	55.0			
M83661-20-24	31	- 20	1.1/4"	1.1/2"		32.0	101.5	63.7	62.0			
M83661-24-24	38	- 24	1.1/2"	1.1/2"		32.0	110.5	63.7	61.5			
M83661-32-32	51	- 32	2"	2"		42.0	151.0	79.6	85.0			



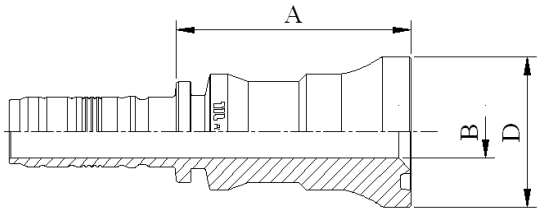
SAE STANDARD CONNECTIONS

M83691

90° ISO / SAE
CODE 62 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE		Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M83691-12-12	19	- 12	3/4"	3/4"		16.0	72.5	41.4	59.0			
M83691-12-16	19	- 12	3/4"	1"		19.5	72.6	47.7	65.0			
M83691-16-12	25	- 16	1"	3/4"		16.0	82.0	41.4	62.0			
M83691-16-16	25	- 16	1"	1"		19.5	82.0	47.7	68.0			
M83691-16-20	25	- 16	1"	1.1/4"		26.0	82.0	54.2	90.0			
M83691-16-20075	25	- 16	1"	1.1/4"		26.0	82.0	54.2	75.0			
M83691-20-16	31	- 20	1.1/4"	1"		19.5	86.0	47.7	68.0			
M83691-20-20	31	- 20	1.1/4"	1.1/4"		26.0	85.0	54.2	90.0			
M83691-20-24	31	- 20	1.1/4"	1.1/2"		32.0	85.0	63.7	104.0			
M83691-24-20	38	- 24	1.1/2"	1.1/4"		26.0	99.0	54.2	90.0			
M83691-24-24	38	- 24	1.1/2"	1.1/2"		32.0	98.0	63.7	104.0			
M83691-24-32	38	- 24	1.1/2"	2"		42.0	98.0	79.6	138.0			
M83691-32-32	51	- 32	2"	2"		42.0	136.0	79.6	138.0			

XTRAFLANGE

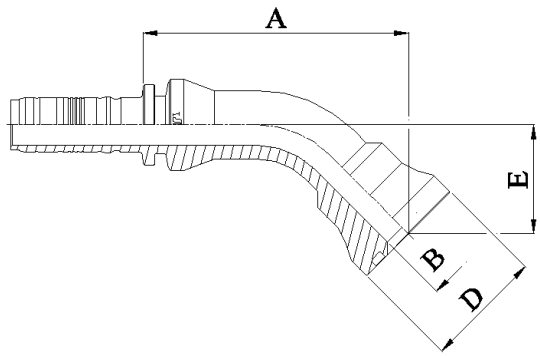


M88511

XTRAFLANGE/62 (SAE J518 -2/ ISO 6162-2 PORT COMPATIBLE)

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D				
M88511-12-12	19	- 12	3/4"	3/4"		14.5	65.5	41.4				
M88511-16-16	25	- 16	1"	1"		19.5	69.0	47.7				
M88511-20-20	31	- 20	1.1/4"	1.1/4"		25.0	88.0	54.4				
M88511-24-24	38	- 24	1.1/2"	1.1/2"		30.5	102.0	63.7				
M88511-32-32	51	- 32	2"	2"		41.0	129.5	79.6				

XTRAFLANGE

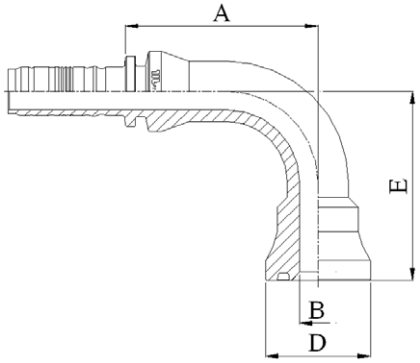


M88541

45° XTRAFLANGE/62 (SAE J518 -2/ ISO 6162-2 PORT COMPATIBLE)

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M88541-12-12	19	- 12	3/4"	3/4"		14.5	93.5	41.4	38.0			
M88541-16-16	25	- 16	1"	1"		19.5	103.5	47.7	45.0			
M88541-20-20	31	- 20	1.1/4"	1.1/4"		25.0	138.0	54.4	62.5			
M88541-24-24	38	- 24	1.1/2"	1.1/2"		30.5	155.0	63.7	71.5			
M88541-32-32	51	- 32	2"	2"		39.0	194.5	79.6	92.5			

XTRAFLANGE

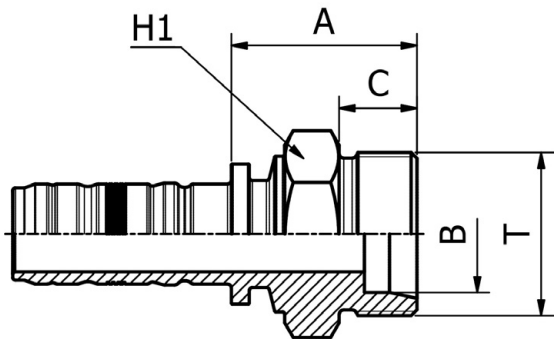


M88591

90° XTRAFLANGE/62 (SAE J518 -2/ ISO 6162-2 PORT COMPATIBLE)

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M88591-12-12	19	- 12	3/4"	3/4"		14.5	76.5	41.4	75.0			
M88591-16-16	25	- 16	1"	1"		19.5	84.5	47.7	90.0			
M88591-20-20	31	- 20	1.1/4"	1.1/4"		25.0	107.0	54.4	120.0			
M88591-24-24	38	- 24	1.1/2"	1.1/2"		30.5	122.0	63.7	140.0			
M88591-32-32	51	- 32	2"	2"		39.0	148.5	79.6	178.0			

DIN STANDARD CONNECTIONS

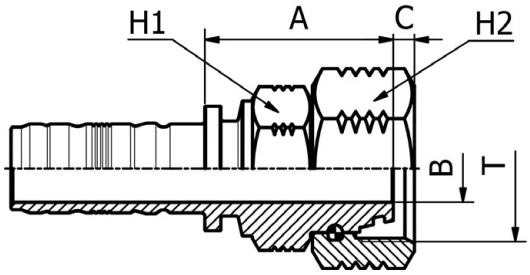


M71210

METRIC
MALE 24° CONE SEAT HEAVY DUTY
DIN 20066 / ISO 12151-2

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	H1			
M71210-12-30	19	- 12	3/4"	M 30X2	20.0	14.5	39.5	16.0	32.0			
M71210-12-36	19	- 12	3/4"	M 36X2	25.0	14.5	44.5	18.0	36.0			
M71210-16-36	25	- 16	1"	M 36X2	25.0	19.5	46.0	18.0	36.0			
M71210-16-42	25	- 16	1"	M 42X2	30.0	19.5	47.5	20.0	46.0			
M71210-20-52	31	- 20	1.1/4"	M 52X2	38.0	25.0	55.0	22.0	55.0			
M71210-24-52	38	- 24	1.1/2"	M 52X2	38.0	30.5	55.5	22.0	55.0			

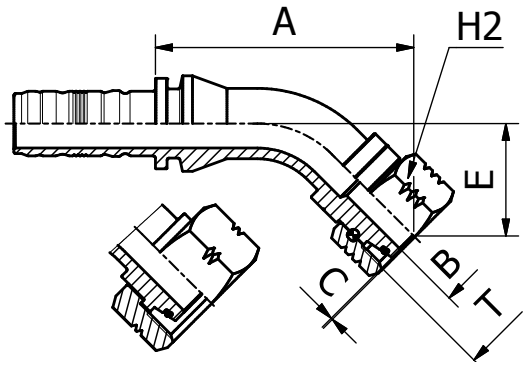
DIN STANDARD CONNECTIONS



M81612

METRIC
O-RING FEMALE 24° CONE HEAVY DUTY
DIN 20066 / ISO 12151-2

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	H1	H2		
M81612-12-30	19	- 12	3/4"	M 30X2	20.0	12.5	49.5	3.2	32.0	36.0		
M81612-12-36	19	- 12	3/4"	M 36X2	25.0	14.5	52.0	4.1	36.0	41.0		
M81612-12-42	19	- 12	3/4"	M 42X2	30.0	19.5	52.5	6.0	41.0	50.0		
M81612-16-36	25	- 16	1"	M 36X2	25.0	16.0	56.0	4.1	41.0	41.0		
M81612-16-42	25	- 16	1"	M 42X2	30.0	19.5	54.5	6.0	41.0	50.0		
M81612-16-52	25	- 16	1"	M 52X2	38.0	25.0	56.0	8.8	50.0	60.0		
M81612-20-42	31	- 20	1.1/4"	M 42X2	30.0	19.5	56.0	6.1	46.0	50.0		
M81612-20-52	31	- 20	1.1/4"	M 52X2	38.0	25.0	57.0	8.8	50.0	60.0		
M81612-24-52	38	- 24	1.1/2"	M 52X2	38.0	26.1	58.0	8.8	55.0	60.0		

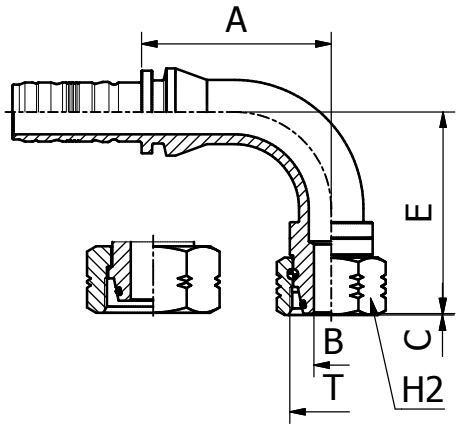


DIN STANDARD CONNECTIONS

M81642/M81643

45° METRIC
O-RING FEMALE SWEPT ELBOW 24° CONE
HEAVY DUTY
DIN 20066 / ISO 12151-2

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	E	H2		
M81642-10-24	16	- 10	5/8"	M24X1.5	16.0	9.3	70.0	4.0	29.5	30.0		
M81642-10-30	16	- 10	5/8"	M 30X2	20.0	12.0	74.0	3.2	33.5	36.0		
M81643-10-36	16	- 10	5/8"	M 36X2	25.0	16.0	74.5	3.4	30.5	41.0		
M81642-12-30	19	- 12	3/4"	M 30X2	20.0	12.5	80.0	3.2	35.0	36.0		
M81643-12-36	19	- 12	3/4"	M 36X2	25.0	14.5	82.0	3.4	33.5	41.0		
M81642-16-36	25	- 16	1"	M 36X2	25.0	15.0	103.0	4.1	44.5	41.0		
M81643-16-42	25	- 16	1"	M 42X2	30.0	19.5	94.0	5.3	36.0	50.0		
M81642-20-42	31	- 20	1.1/4"	M 42X2	30.0	19.1	117.5	6.0	44.0	50.0		
M81643-20-52	31	- 20	1.1/4"	M 52X2	38.0	26.1	111.0	8.0	40.0	60.0		



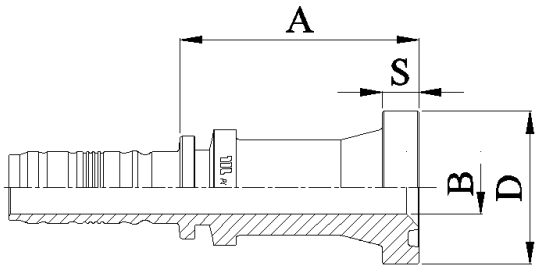
DIN STANDARD CONNECTIONS

M81692/M81693

90° METRIC
O-RING FEMALE SWEPT ELBOW 24° CONE
HEAVY DUTY
DIN 20066 / ISO 12151-2

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	E	H2		
M81692-10-24	16	- 10	5/8"	M24X1.5	16.0	9.3	57.0	4.0	58.5	30.0		
M81692-10-30	16	- 10	5/8"	M 30X2	20.0	12.0	57.0	3.2	64.0	36.0		
M81693-10-36	16	- 10	5/8"	M 36X2	25.0	16.0	60.5	3.4	60.0	41.0		
M81692-12-30	19	- 12	3/4"	M 30X2	20.0	12.5	64.5	3.2	68.5	36.0		
M81693-12-36	19	- 12	3/4"	M 36X2	25.0	14.5	68.0	3.4	67.5	41.0		
M81692-16-36	25	- 16	1"	M 36X2	25.0	15.0	83.0	4.1	87.5	41.0		
M81693-16-42	25	- 16	1"	M 42X2	30.0	19.5	82.5	5.3	75.5	50.0		
M81692-20-42	31	- 20	1.1/4"	M 42X2	30.0	19.1	102.0	6.0	90.0	50.0		
M81693-20-52	31	- 20	1.1/4"	M 52X2	38.0	26.1	101.0	8.0	86.5	60.0		

ORIGINAL EQUIPMENT CONNECTIONS

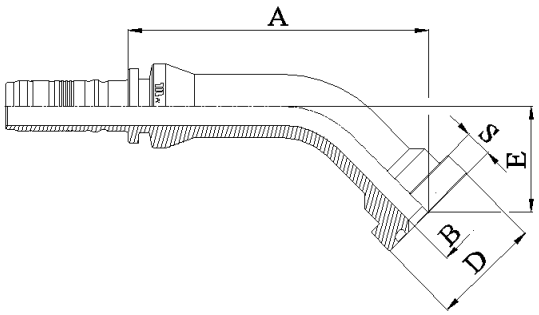


M83711

FLANGE PLUS (SAE J518 -2 /ISO 6162-2 P ORT COMPATIBLE)

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	S			
M83711-12-12	19	- 12	3/4"	3/4"		14.5	65.0	41.4	10.0			
M83711-16-16	25	- 16	1"	1"		19.5	65.0	47.7	11.0			
M83711-20-20	31	- 20	1.1/4"	1.1/4"		25.0	81.0	54.2	12.0			

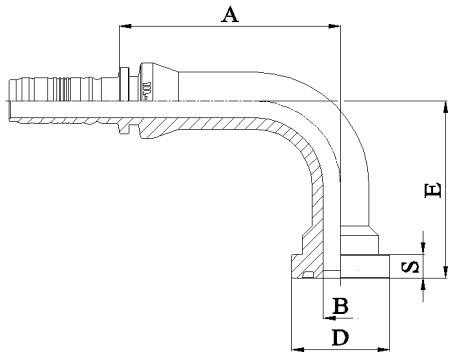
ORIGINAL EQUIPMENT CONNECTIONS



M83741

45° FLANGE PLUS (SAE J518-2/ISO 6162-2 PORT COMPATIBLE)

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	S		
M83741-12-12	19	- 12	3/4"	3/4"		14.5	114.0	41.4	40.0	10.0		
M83741-16-16	25	- 16	1"	1"		19.5	107.5	47.7	43.0	11.0		
M83741-20-20	31	- 20	1.1/4"	1.1/4"		25.0	133.5	54.2	50.0	12.0		



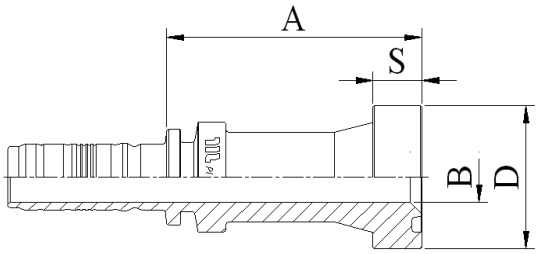
ORIGINAL EQUIPMENT CONNECTIONS

M83791

90° FLANGE PLUS (SAE J518 -2/ ISO 6162-2 PORT COMPATIBLE)

PART. REF.	HOSE BORE		Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	S		
M83791-12-12	19	- 12	3/4"	3/4"		14.5	93.5	41.4	75.0	10.0		
M83791-16-16	25	- 16	1"	1"		19.5	91.0	47.7	90.0	11.0		
M83791-20-20	31	- 20	1.1/4"	1.1/4"		25.0	115.0	54.2	110.0	12.0		

ORIGINAL EQUIPMENT CONNECTIONS

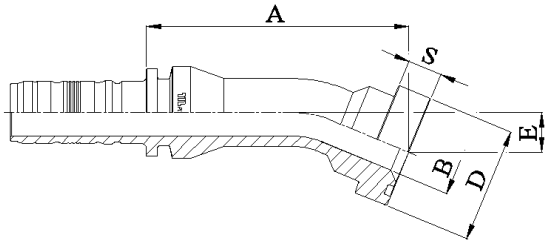


M83911

STRAIGHT SUPERCAT SERIES FLANGE

PART. REF.	HOSE BORE		Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	S			
M83911-12-12	19	- 12	3/4"	3/4"		14.5	75.0	41.5	14.3			
M83911-12-16	19	- 12	3/4"	1"		19.5	80.5	47.7	14.3			
M83911-16-16	25	- 16	1"	1"		19.5	80.0	47.7	14.3			
M83911-16-20	25	- 16	1"	1.1/4"		26.0	84.0	54.0	14.3			
M83911-20-20	31	- 20	1.1/4"	1.1/4"		26.0	80.5	54.0	14.3			
M83911-20-24	31	- 20	1.1/4"	1.1/2"		32.0	84.0	63.6	14.3			
M83911-24-24	38	- 24	1.1/2"	1.1/2"		32.0	84.5	63.6	14.3			
M83911-24-32	38	- 24	1.1/2"	2"		42.0	107.5	79.3	14.3			
M83911-32-24	51	- 32	2"	1.1/2"		32.0	95.5	63.6	14.3			
M83911-32-32	51	- 32	2"	2"		42.0	110.5	79.3	14.3			

ORIGINAL EQUIPMENT CONNECTIONS

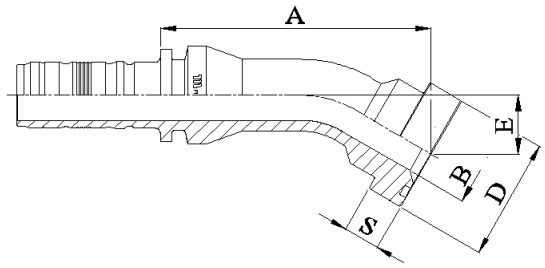


M83921

22,5° SUPERCAT SERIES FLANGE

PART. REF.	HOSE BORE		Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	S		
M83921-12-12	19	- 12	3/4"	3/4"		16.0	101.5	41.5	16.0	14.3		
M83921-12-16	19	- 12	3/4"	1"		19.5	98.0	47.7	16.5	14.3		
M83921-16-16	25	- 16	1"	1"		19.5	108.5	47.7	16.5	14.3		
M83921-16-20	25	- 16	1"	1.1/4"		26.0	113.0	54.0	18.5	14.3		
M83921-20-20	31	- 20	1.1/4"	1.1/4"		26.0	120.5	54.0	18.0	14.3		
M83921-20-24	31	- 20	1.1/4"	1.1/2"		32.0	119.0	63.7	21.0	14.3		
M83921-24-24	38	- 24	1.1/2"	1.1/2"		32.0	123.5	63.7	20.0	14.3		

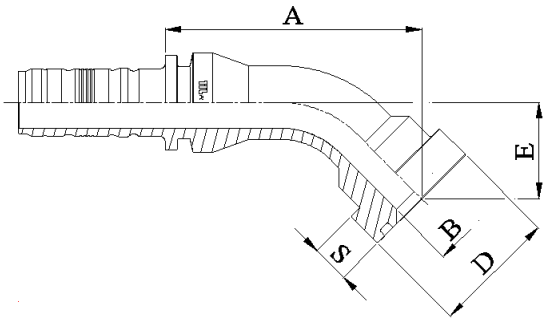
ORIGINAL EQUIPMENT CONNECTIONS



M83931

30° SUPERCAT SERIES FLANGE

PART. REF.	HOSE BORE		Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	S		
M83931-12-12	19	- 12	3/4"	3/4"		16.0	99.0	41.5	22.0	14.3		
M83931-12-16	19	- 12	3/4"	1"		19.5	99.5	47.7	22.5	14.3		
M83931-16-16	25	- 16	1"	1"		19.5	106.0	47.7	23.0	14.3		
M83931-16-20	25	- 16	1"	1.1/4"		26.0	110.0	54.0	26.0	14.3		
M83931-20-20	31	- 20	1.1/4"	1.1/4"		26.0	117.5	54.0	25.0	14.3		
M83931-20-24	31	- 20	1.1/4"	1.1/2"		32.0	115.5	63.7	29.0	14.3		
M83931-24-24	38	- 24	1.1/2"	1.1/2"		32.0	120.5	63.7	28.0	14.3		
M83931-24-32	38	- 24	1.1/2"	2"		42.0	134.5	79.3	36.0	14.3		
M83931-32-32	51	- 32	2"	2"		42.0	163.5	79.3	37.5	14.3		

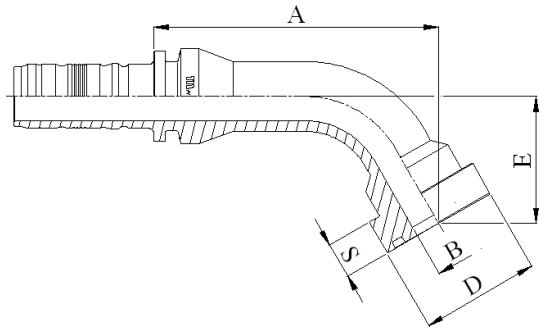


ORIGINAL EQUIPMENT CONNECTIONS

M83941

45° SUPERCAT SERIES FLANGE

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	S		
M83941-12-12	19	- 12	3/4"	3/4"		16.0	91.5	41.5	34.5	14.3		
M83941-12-16	19	- 12	3/4"	1"		19.5	92.0	47.7	35.5	14.3		
M83941-16-16	25	- 16	1"	1"		19.5	98.0	47.7	36.5	14.3		
M83941-16-20	25	- 16	1"	1.1/4"		26.0	101.0	54.0	40.5	14.3		
M83941-20-20	31	- 20	1.1/4"	1.1/4"		26.0	109.0	54.0	40.0	14.3		
M83941-20-24	31	- 20	1.1/4"	1.1/2"		32.0	106.0	63.7	46.0	14.3		
M83941-24-24	38	- 24	1.1/2"	1.1/2"		32.0	111.0	63.7	45.5	14.3		
M83941-24-32	38	- 24	1.1/2"	2"		42.0	122.0	79.3	56.5	14.3		
M83941-32-32	51	- 32	2"	2"		42.0	150.5	79.3	61.5	14.3		

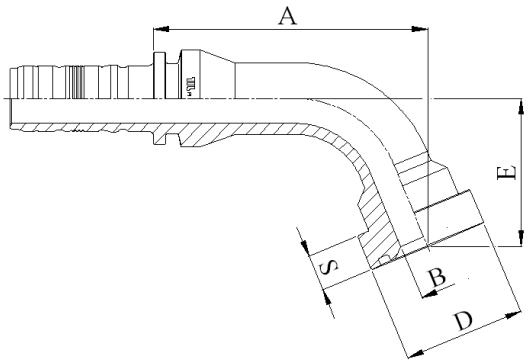


ORIGINAL EQUIPMENT CONNECTIONS

M83961

60° SUPERCAT SERIES FLANGE

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	S		
M83961-12-12	19	- 12	3/4"	3/4"		16.0	106.5	41.5	47.0	14.3		
M83961-12-16	19	- 12	3/4"	1"		19.5	107.0	47.7	48.0	14.3		
M83961-16-16	25	- 16	1"	1"		19.5	114.0	47.7	51.0	14.3		
M83961-16-16055	25	- 16	1"	1"		19.5	100.0	47.7	55.0	14.3		
M83961-16-20	25	- 16	1"	1.1/4"		26.0	116.5	54.0	54.0	14.3		
M83961-20-20	31	- 20	1.1/4"	1.1/4"		26.0	130.0	54.0	54.5	14.3		
M83961-20-24	31	- 20	1.1/4"	1.1/2"		32.0	126.0	63.7	63.5	14.3		
M83961-24-24	38	- 24	1.1/2"	1.1/2"		32.0	140.0	63.7	63.0	14.3		
M83961-32-32	51	- 32	2"	2"		42.0	194.0	79.3	86.5	14.3		
M83961-32-32150	51	- 32	2"	2"		42.0	198.0	79.3	150.0	14.3		

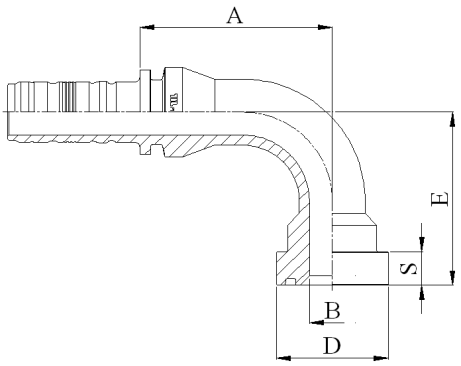


ORIGINAL EQUIPMENT CONNECTIONS

M83971

67,5° SUPERCAT SERIES FLANGE

PART. REF.	HOSE BORE		Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	S		
M83971-12-12	19	- 12	3/4"	3/4"		16.0	100.0	41.5	53.0	14.3		
M83971-12-16	19	- 12	3/4"	1"		19.5	100.5	47.7	54.0	14.3		
M83971-16-16	25	- 16	1"	1"		19.5	107.0	47.7	58.0	14.3		
M83971-16-20	25	- 16	1"	1.1/4"		26.0	109.0	54.0	62.0	14.3		
M83971-20-20	31	- 20	1.1/4"	1.1/4"		26.0	123.0	54.0	62.0	14.3		
M83971-20-24	31	- 20	1.1/4"	1.1/2"		32.0	117.5	63.7	71.5	14.3		
M83971-24-24	38	- 24	1.1/2"	1.1/2"		32.0	131.0	63.7	72.0	14.3		
M83971-32-32	51	- 32	2"	2"		42.0	181.5	79.3	99.0	14.3		

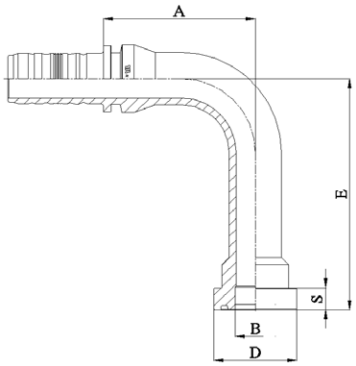


ORIGINAL EQUIPMENT CONNECTIONS

M83991

90° SUPERCAT SERIES FLANGE

PART. REF.	HOSE BORE		Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	S		
M83991-12-12	19	- 12	3/4"	3/4"		16.0	76.0	41.5	68.5	14.3		
M83991-12-16	19	- 12	3/4"	1"		19.5	76.0	47.7	69.5	14.3		
M83991-16-16	25	- 16	1"	1"		19.5	82.0	47.7	73.5	14.3		
M83991-16-20	25	- 16	1"	1.1/4"		26.0	82.0	54.0	78.5	14.3		
M83991-20-20	31	- 20	1.1/4"	1.1/4"		26.0	94.0	54.0	82.0	14.3		
M83991-20-24	31	- 20	1.1/4"	1.1/2"		32.0	85.0	63.7	92.0	14.3		
M83991-24-24	38	- 24	1.1/2"	1.1/2"		32.0	98.0	63.7	96.0	14.3		
M83991-24-32	38	- 24	1.1/2"	2"		42.0	98.0	79.3	112.0	14.3		
M83991-32-32	51	- 32	2"	2"		42.0	136.0	79.3	133.5	14.3		



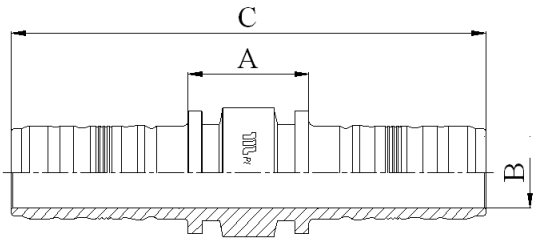
ORIGINAL EQUIPMENT CONNECTIONS

M83991 LONG DROP

90° LONG DROP SUPERCAT SERIES FLANGE

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	S		
M83991-16-16132	25	- 16	1"	1"		19.5	86.0	47.7	132.0	14.3		
M83991-16-16150	25	- 16	1"	1"		19.5	86.0	47.7	150.0	14.3		
M83991-16-20150	25	- 16	1"	1.1/4"		26.0	82.0	54.0	150.0	14.3		
M83991-20-20092	31	- 20	1.1/4"	1.1/4"		26.1	99.0	54.0	92.0	14.3		
M83991-20-20150	31	- 20	1.1/4"	1.1/4"		26.1	99.0	54.0	150.0	14.3		
M83991-20-24135	31	- 20	1.1/4"	1.1/2"		32.0	98.5	63.7	135.0	14.3		
M83991-24-24106	38	- 24	1.1/2"	1.1/2"		32.0	112.5	63.7	106.0	14.3		

DOUBLE CONNECTOR

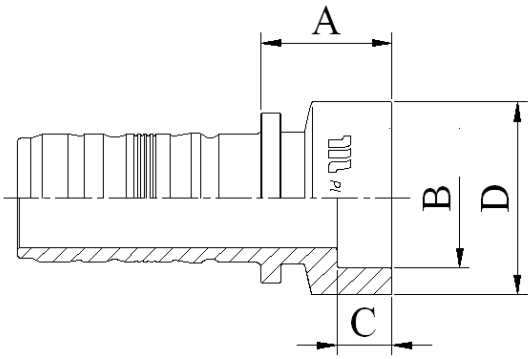


M70050

DOUBLE CONNECTOR

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch			B	A	C				
M70050-20-20	31	- 20	1.1/4"			25.0	42.5	166.2				
M70050-24-24	38	- 24	1.1/2"			30.5	43.0	178.9				
M70050-32-32	51	- 32	2"			41.0	45.5	220.8				

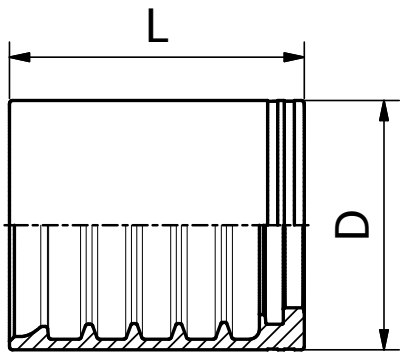
TAIL



M89510WL

WELDING TAIL

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch			B	A	C	D			
M89510-12-22WL	19	- 12	3/4"			22.1	28.5	12.0	34.0			
M89510-16-28WL	25	- 16	1"			28.1	32.5	14.0	40.0			
M89510-20-35WL	31	- 20	1.1/4"			35.1	33.0	14.0	49.0			



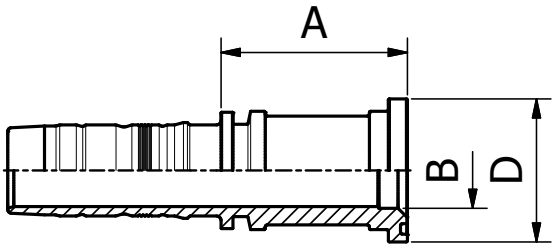
FERRULE

M05500-GX

NO-SKIVE FERRULE FOR HEAVY DUTY SPIRAL HOSES (4-6 PLY)

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch			D	L					
M05500-24GX	38	- 24	1.1/2"			75.0	88.5					
M05500-32GX	51	- 32	2"			98.0	120.3					

SAE STANDARD CONNECTIONS

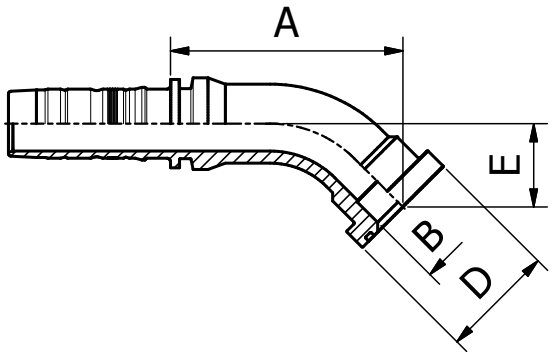


M83611-GX

ISO/SAE CODE 62 FLANGE (ISO 6162-2 / SAE J518 CODE 62)

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D				
M83611-24-24GX	38	- 24	1.1/2"	1.1/2"		32.0	79.0	63.7				
M83611-24-32GX	38	- 24	1.1/2"	2"		42.0	95.0	79.6				
M83611-32-32GX	51	- 32	2"	2"		42.0	98.5	79.6				

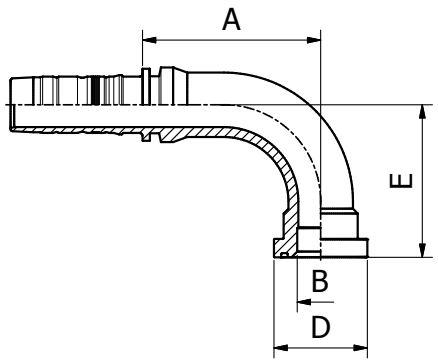
SAE STANDARD CONNECTIONS



M83641-GX

45° ISO/SAE CODE 62 FLANGE (ISO 6162-2 / SAE J518 CODE 62)

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M83641-24-24GX	38	- 24	1.1/2"	1.1/2"		32.0	129.0	63.7	46.5			
M83641-24-32GX	38	- 24	1.1/2"	2"		32.0	138.0	79.6	57.5			
M83641-32-32GX	51	- 32	2"	2"		42.0	149.0	79.6	59.0			

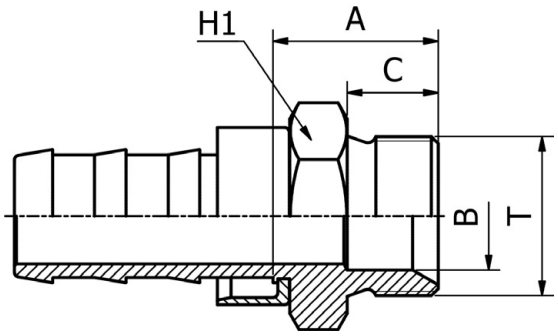


SAE STANDARD CONNECTIONS

M83691-GX

90° ISO/SAE CODE 62 FLANGE
(ISO 6162-2 / SAE J518 CODE 62)

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E			
M83691-24-24GX	38	- 24	1.1/2”	1.1/2”		32.0	121.5	63.7	104.5			
M83691-32-32GX	51	- 32	2”	2”		42.0	136.5	79.6	138.0			

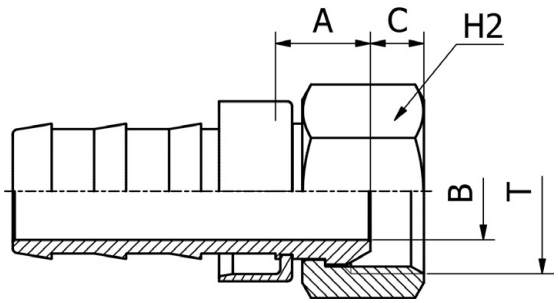


BS STANDARD CONNECTIONS

L10510

BSP
MALE PARALLEL 60° CONE SEAT
BS5200 / ISO 8434-6

PART. REF.	HOSE BORE		Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H1			
L10510-04-04	6	- 4	1/4"	1/4" - 19		5.0	20.5	11.0	19.0			
L10510-04-06	6	- 4	1/4"	3/8" - 19		8.0	22.5	12.0	22.0			
L10510-06-06	10	- 6	3/8"	3/8" - 19		8.0	23.0	12.0	22.0			
L10510-08-08	12	- 8	1/2"	1/2" - 14		11.0	27.0	14.0	27.0			
L10510-10-10	16	- 10	5/8"	5/8" - 14		14.5	28.5	16.0	30.0			
L10510-12-12	19	- 12	3/4"	3/4" - 14		17.0	30.5	16.0	32.0			
L10510-16-16	25	- 16	1"	1" - 11		22.5	34.5	19.0	41.0			

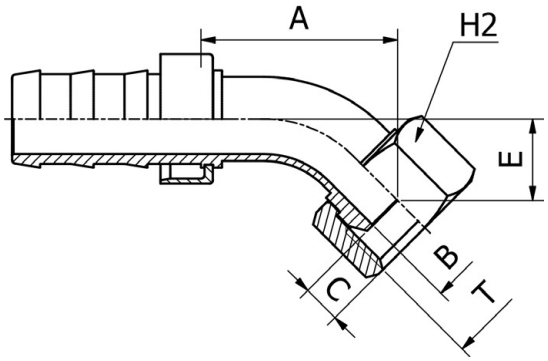


BS STANDARD CONNECTIONS

L20513

BSP
FEMALE 60° CONE
BS5200 / ISO 12151-6
(SLIP-ON NUT)

PART. REF.	HOSE BORE		Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	H2			
L20513-04-04	6	- 4	1/4"	1/4" - 19		4.0	12.5	5.8	19.0			
L20513-04-06	6	- 4	1/4"	3/8" - 19		7.0	14.6	6.2	22.0			
L20513-06-06	10	- 6	3/8"	3/8" - 19		7.0	15.0	6.2	22.0			
L20513-08-08	12	- 8	1/2"	1/2" - 14		9.5	16.5	6.5	27.0			
L20513-10-10	16	- 10	5/8"	5/8" - 14		12.0	16.0	9.0	28.0			
L20513-12-12	19	- 12	3/4"	3/4" - 14		16.0	18.0	9.0	32.0			
L20513-12-16	19	- 12	3/4"	1" - 11		19.0	19.5	11.0	38.0			
L20513-16-16	25	- 16	1"	1" - 11		19.0	19.5	11.0	38.0			

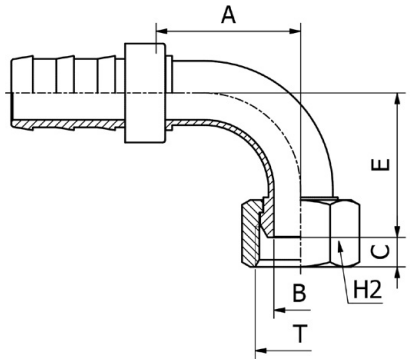


BS STANDARD CONNECTIONS

L20543

45° BSP
FEMALE SWEPT ELBOW 60° CONE
BS5200/ISO 12151-6
(SLIP-ON NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
L20543-04-04	6	- 4	1/4"	1/4" - 19		4.0	31.0	5.8	12.0	19.0		
L20543-06-06	10	- 6	3/8"	3/8" - 19		7.0	38.5	6.2	14.5	22.0		
L20543-08-08	12	- 8	1/2"	1/2" - 14		9.5	44.0	6.5	18.5	27.0		
L20543-10-10	16	- 10	5/8"	5/8" - 14		12.0	50.5	9.0	19.0	28.0		
L20543-12-12	19	- 12	3/4"	3/4" - 14		16.0	53.0	9.0	21.0	32.0		
L20543-16-16	25	- 16	1"	1" - 11		19.0	56.0	11.0	23.5	38.0		

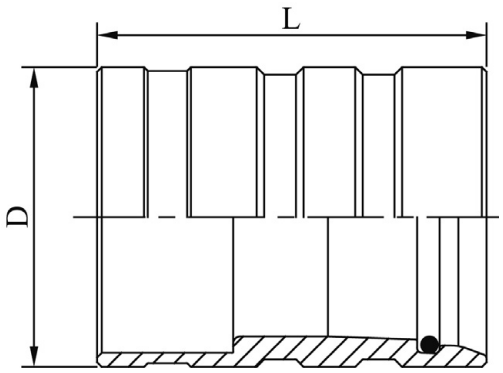


BS STANDARD CONNECTIONS

L20593

90° BSP
FEMALE SWEPT ELBOW 60° CONE
BS5200/ISO 12151-6
(SLIP-ON NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	H2		
L20593-04-04	6	- 4	1/4"	1/4" - 19		4.0	26.0	5.8	24.0	19.0		
L20593-06-06	10	- 6	3/8"	3/8" - 19		7.0	35.0	6.2	30.5	22.0		
L20593-08-08	12	- 8	1/2"	1/2" - 14		9.5	38.0	6.5	38.5	27.0		
L20593-10-10	16	- 10	5/8"	5/8" - 14		12.0	45.5	9.0	41.0	28.0		
L20593-12-16	19	- 12	3/4"	1" - 11		19.0	48.5	11.0	48.5	38.0		
L20593-12-12	19	- 12	3/4"	3/4" - 14		16.0	48.5	9.0	46.5	32.0		
L20593-16-16	25	- 16	1"	1" - 11		19.0	54.0	11.0	54.0	38.0		

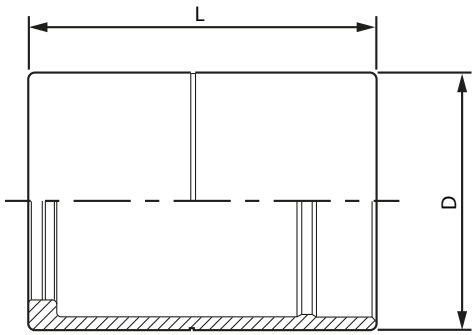


ACCESSORIES

0820

ANTI-KINK SLEEVE

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch			D	L					
O82040-12	19	- 12	3/4"			45.0	67.0					
O82040-16	25	- 16	1"			52.0	81.0					
O82068-16	25	- 16	1"			55.0	75.0					
O82062-20	31	- 20	1.1/4"			64.0	83.0					
O82060-20	31	- 20	1.1/4"			64.0	84.0					
O82068-20	31	- 20	1.1/4"			65.5	83.0					
O82060-24	38	- 24	1.1/2"			72.0	102.0					
O82068-24	38	- 24	1.1/2"			73.0	99.0					
O82068-32	51	- 32	2"			86.5	116.0					
O82068-40	63	- 40	2.1/2"			100.5	148.5					
O82068-48	76	- 48	3"			112.0	158.0					

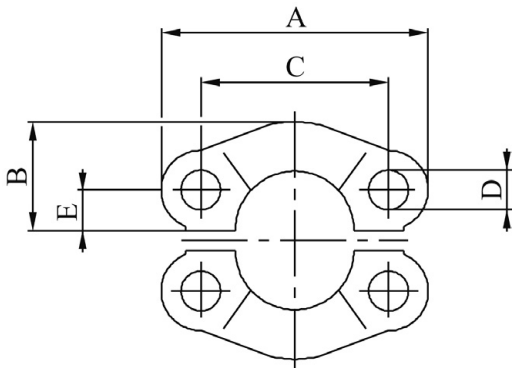


ACCESSORIES

0821 / I0821

METAL SLEEVE / STAINLESS STEEL SLEEVE

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch			D	L					
O82110-06	10	- 6	3/8"			36.1	51.0					
O82110-08	12	- 8	1/2"			44.5	59.0					
O82110-10	16	- 10	5/8"			48.0	65.0					
O82110-12	19	- 12	3/4"			55.5	75.0					
O82110-16	25	- 16	1"			64.5	90.0					
O82110-20	31	- 20	1.1/4"			75.0	112.0					
O82110-24	38	- 24	1.1/2"			83.3	117.0					
O82110-32	51	- 32	2"			95.4	128.0					
IO82110-06	10	- 6	3/8"			36.1	51.0					
IO82110-08	12	- 8	1/2"			44.5	59.0					
IO82110-10	16	- 10	5/8"			48.0	65.0					
IO82110-12	19	- 12	3/4"			55.5	75.0					
IO82110-16	25	- 16	1"			64.5	90.0					
IO82110-20	31	- 20	1.1/4"			75.0	112.0					
IO82110-24	38	- 24	1.1/2"			83.3	117.0					
IO82110-32	51	- 32	2"			95.4	128.0					

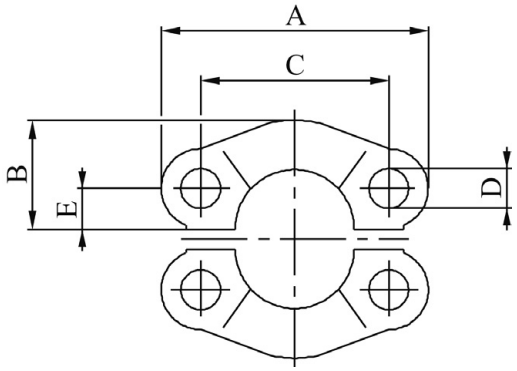


ACCESSORIES

083308

ISO/SAE
CODE 61 SPLIT FLANGE CLAMPS
SAE J518 / ISO 6162-1

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch			B	A	C	D	E		
O83308-08						22.8	54.0	38.1	8.75	8.7		
O83308-12						25.9	65.0	47.6	10.75	11.1		
O83308-16						29.2	70.0	52.4	10.75	13.1		
O83308-20						36.3	79.0	58.7	12.0	15.1		
O83308-24						41.1	94.0	69.8	13.5	17.9		
O83308-32						48.2	102.0	77.8	13.5	21.4		
O83308-40						54.1	114.0	88.9	13.5	25.4		
O83308-48						65.3	135.0	106.4	16.75	31.0		
O83308-56						70.0	152.0	120.65	17.0	34.85		
O83308-64						75.0	160.0	130.18	17.0	38.9		

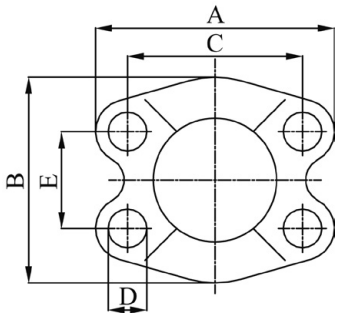


ACCESSORIES

083609

ISO/SAE
CODE 62 SPLIT FLANGE CLAMPS
SAE J518 / ISO 6162-2

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch			B	A	C	D	E		
O83609-08						23.6	56.0	40.5	8.75	9.1		
O83609-12						30.0	71.0	50.8	11.0	11.9		
O83609-16						34.8	81.0	57.1	13.0	13.9		
O83609-20						38.6	95.0	66.7	15.0	15.9		
O83609-24						47.5	113.0	79.4	17.0	18.3		
O83609-32						56.9	133.0	96.8	21.0	22.2		

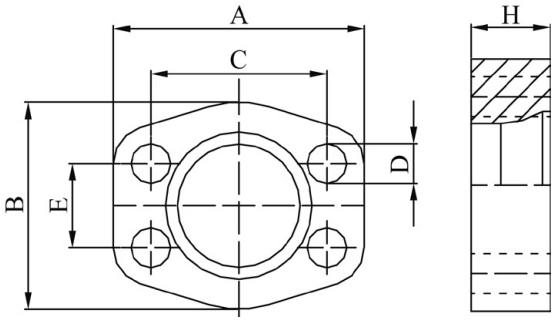


ACCESSORIES

083607

CODE 62 ONE-PIECE FLANGE CLAMP
ISO 6162-2 / SAE J518

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch			B	A	C	D	E		
O83607-12	19	- 12	3/4"			60.0	72.0	50.8	10.5	23.8		
O83607-16	25	- 16	1"			70.0	81.0	57.2	13.0	27.8		
O83607-20	31	- 20	1.1/4"			78.0	96.0	66.7	15.0	31.8		
O83607-24	38	- 24	1.1/2"			96.0	113.0	79.4	17.0	36.5		
O83607-32	51	- 32	2"			114.0	134.0	96.8	21.0	44.4		
O83607-40	63	- 40	2.1/2"			150.0	175.0	123.8	25.0	58.7		
O83607-48	76	- 48	3"			178.0	210.0	152.4	32.0	71.4		

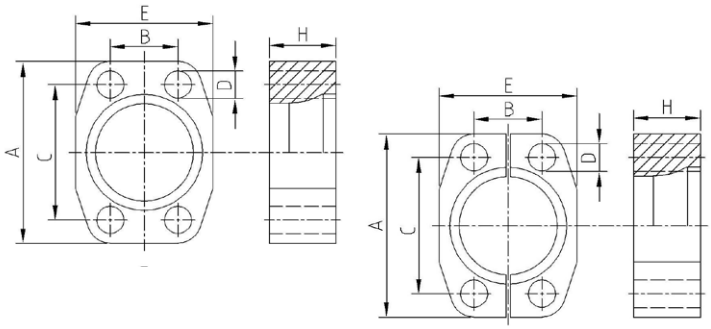


ACCESSORIES

088507

ONE-PIECE CODE 62 XTRAFLANGE CLAMP
ISO 6162-2 / SAE J518
PORT COMPATIBLE

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch			B	A	C	D	E	H	
O88507-12						60.0	71.5	50.8	11.0	23.8	21.5	
O88507-16						66.7	80.0	57.2	13.0	27.8	24.0	
O88507-20						78.0	95.0	66.7	15.0	31.7	30.0	
O88507-24						94.0	112.0	79.4	17.0	36.5	36.0	
O88507-32						114.0	133.0	96.8	21.0	44.5	47.0	
O88507-40						150.0	180.0	123.8	26.0	58.8	55.0	
O88507-48						176.0	210.3	152.4	31.0	71.4	60.0	



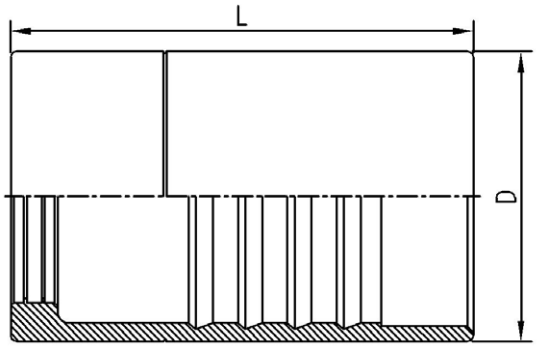
ACCESSORIES

088407

ONE-PIECE XTRAFLANGE 61 CLAMP / SPLIT XTRAFLANGE/61 CLAMP

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	C	D	E	H	
O88407-16				1"		26.2	70.5	52.4	10.6	53.0	25.7	
O88407-20				1.1/4"		30.2	80.0	58.7	12.0	64.0	26.8	
O88407-24				1.1/2"		35.7	94.0	69.9	13.3	77.0	33.6	
O88407-32				2"		42.9	102.0	77.8	13.3	88.0	35.0	
O88407-40				2.1/2"		50.8	114.0	88.9	13.3	102.0	44.3	

O88407-32 and O88407-40: Split XtraFlange/61 Clamp

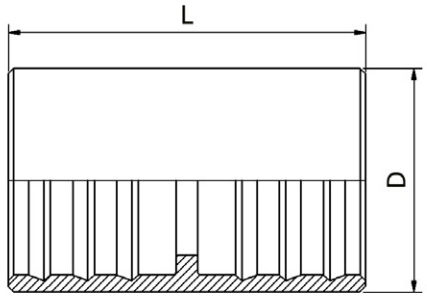


ACCESSORIES

IO821GA

METAL SLEEVE FOR ARMOUR (STAINLESS STEEL)

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch			D	L					
IO82110-06GA	10	- 6	3/8"			40.5	60.0					
IO82110-08GA	12	- 8	1/2"			46.8	75.0					
IO82110-10GA	16	- 10	5/8"			53.2	90.0					
IO82110-12GA	19	- 12	3/4"			59.5	105.0					
IO82110-16GA	25	- 16	1"			66.0	120.0					
IO82110-20GA	31	- 20	1.1/4"			78.6	135.0					
IO82110-24GA	38	- 24	1.1/2"			91.5	150.0					
IO82110-32GA	51	- 32	2"			106.5	165.0					

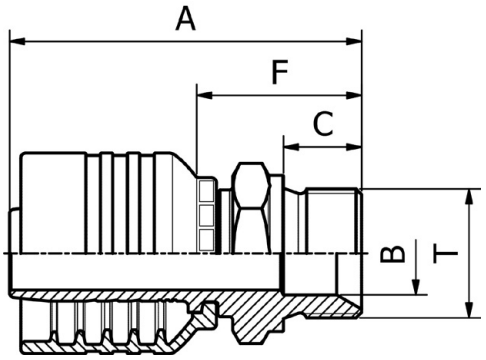


ACCESSORIES

IO84210

ARMOUR-JOINT

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch			D	L					
IO84210-06	10	- 6	3/8"			40.5	65.0					
IO84210-08	12	- 8	1/2"			46.8	65.0					
IO84210-10	16	- 10	5/8"			53.2	65.0					
IO84210-12	19	- 12	3/4"			59.5	70.0					
IO84210-16	25	- 16	1"			66.0	75.0					
IO84210-20	31	- 20	1.1/4"			78.6	95.0					
IO84210-24	38	- 24	1.1/2"			91.5	105.0					
IO84210-32	51	- 32	2"			106.5	115.0					

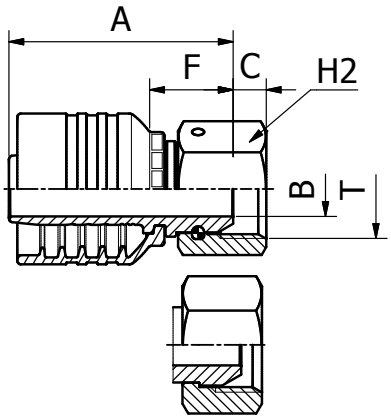


BS STANDARD CONNECTIONS

OPK10510

BSP
MALE PARALLEL 60° CONE SEAT
BS5200 / ISO 8434-6

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	F	H1		
OPK10510-06A04	10	- 6	3/8"	1/4" - 19		5.0	55.5	11.0	26.0	19.0		
OPK10510-06A06	10	- 6	3/8"	3/8" - 19		8.0	57.5	12.0	28.0	22.0		
OPK10510-06A08	10	- 6	3/8"	1/2" - 14		11.0	60.0	14.0	30.5	27.0		
OPK10510-08A06	12	- 8	1/2"	3/8" - 19		8.0	59.0	12.0	28.0	22.0		
OPK10510-08A08	12	- 8	1/2"	1/2" - 14		11.0	62.0	14.0	31.0	27.0		
OPK10510-08A10	12	- 8	1/2"	5/8" - 14		14.5	64.0	16.0	33.0	30.0		
OPK10510-08A12	12	- 8	1/2"	3/4" - 14		17.0	65.0	16.0	34.0	32.0		
OPK10510-10A10	16	- 10	5/8"	5/8" - 14		14.5	67.5	16.0	33.0	30.0		
OPK10510-10A12	16	- 10	5/8"	3/4" - 14		17.0	68.5	16.0	35.5	32.0		
OPK10510-12A12	19	- 12	3/4"	3/4" - 14		17.0	72.0	16.0	35.5	32.0		
OPK10510-12A16	19	- 12	3/4"	1" - 11		22.5	76.0	19.0	39.5	41.0		
OPK10510-16A16	25	- 16	1"	1" - 11		22.5	89.0	19.0	41.0	41.0		
OPK10510-16A20	25	- 16	1"	1.1/4" - 11		28.5	93.0	20.0	45.0	50.0		
OPK10510-20A20	31	- 20	1.1/4"	1.1/4" - 11		28.5	99.0	20.0	46.5	50.0		
OPK10510-24A24	38	- 24	1.1/2"	1.1/2" - 11		33.5	111.5	22.0	49.5	55.0		
OPK10510-32A32	51	- 32	2"	2" - 11		46.0	120.0	25.0	54.0	70.0		



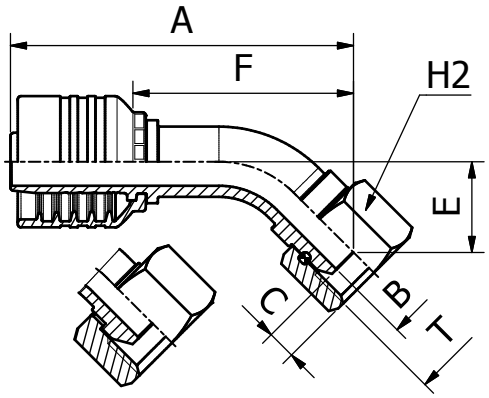
BS STANDARD CONNECTIONS

OPK20512/OPK20513

BSP
FEMALE 60° CONE
BS5200 / ISO 12151-6

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	F	H2		
OPK20512-06A04	10	- 6	3/8"	1/4" - 19		4.1	47.5	4.2	18.0	19.0		
OPK20513-06A06	10	- 6	3/8"	3/8" - 19		7.0	49.0	6.0	19.5	22.0		
OPK20513-06A08	10	- 6	3/8"	1/2" - 14		9.3	49.5	6.3	20.0	27.0		
OPK20512-08A06	12	- 8	1/2"	3/8" - 19		7.1	52.0	6.0	21.0	22.0		
OPK20513-08A08	12	- 8	1/2"	1/2" - 14		9.3	51.5	6.3	20.5	27.0		
OPK20512-08A10	12	- 8	1/2"	5/8" - 14		12.1	53.0	10.2	22.0	28.0		
OPK20512-08A12	12	- 8	1/2"	3/4" - 14		15.0	56.0	9.0	24.5	32.0		
OPK20512-10A10	16	- 10	5/8"	5/8" - 14		12.5	56.0	10.2	21.5	28.0		
OPK20512-10A12	16	- 10	5/8"	3/4" - 14		15.0	57.5	9.0	23.0	32.0		
OPK20512-12A16	19	- 12	3/4"	1" - 11		19.8	62.5	10.5	26.0	38.0		
OPK20512-12A12	19	- 12	3/4"	3/4" - 14		15.0	61.0	9.0	24.5	32.0		
OPK20512-16A16	25	- 16	1"	1" - 11		19.8	75.5	10.5	27.5	38.0		

OPK20512: THRUST WIRE NUT / OPK20513: SLIP-ON NUT



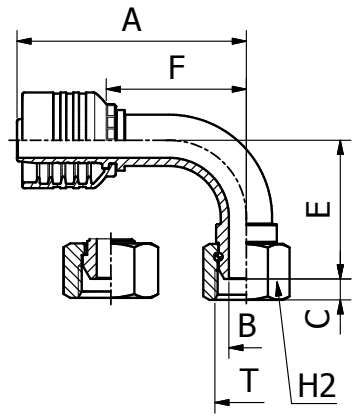
BS STANDARD CONNECTIONS

OPK20542/OPK20543

45° BSP
FEMALE ELBOW 60° CONE
BS5200 / ISO 12151-6

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	F	H2	
OPK20543-06A06	10	- 6	3/8"	3/8" - 19		7.0	71.5	6.0	15.5	42.0	22.0	
OPK20543-06A08	10	- 6	3/8"	1/2" - 14		9.3	72.0	6.3	16.0	42.5	27.0	
OPK20543-08A08	12	- 8	1/2"	1/2" - 14		9.3	81.0	6.3	17.0	49.5	27.0	
OPK20542-08A10	12	- 8	1/2"	5/8" - 14		12.1	85.5	10.2	22.5	54.5	28.0	
OPK20542-10A10	16	- 10	5/8"	5/8" - 14		12.5	97.5	10.2	26.0	63.0	28.0	
OPK20542-10A12	16	- 10	5/8"	3/4" - 14		15.0	98.0	9.0	27.0	64.0	32.0	
OPK20542-12A12	19	- 12	3/4"	3/4" - 14		15.0	107.0	9.0	28.5	70.5	32.0	
OPK20542-12A16	19	- 12	3/4"	1" - 11		19.8	109.0	10.5	30.0	72.5	38.0	
OPK20542-16A16	25	- 16	1"	1" - 11		19.8	139.5	10.5	36.5	91.0	38.0	

OPK20542: THRUST WIRE NUT / OPK20543: SLIP-ON NUT



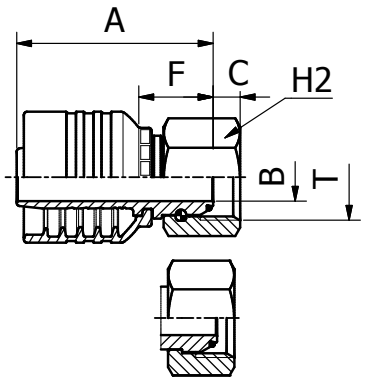
BS STANDARD CONNECTIONS

OPK20592/OPK20593

90° BSP
FEMALE ELBOW 60° CONE
BS5200

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	F	H2	
OPK20593-06A06	10	- 6	3/8"	3/8" - 19		7.0	66.0	6.0	31.5	36.5	22.0	
OPK20593-06A08	10	- 6	3/8"	1/2" - 14		9.3	66.0	6.3	32.0	36.5	27.0	
OPK20592-08A06	12	- 8	1/2"	3/8" - 19		7.1	76.0	6.0	41.0	45.0	22.0	
OPK20593-08A08	12	- 8	1/2"	1/2" - 14		9.3	76.0	6.3	36.5	45.0	27.0	
OPK20592-08A10	12	- 8	1/2"	5/8" - 14		12.1	75.5	10.2	44.0	44.0	28.0	
OPK20592-08A12	12	- 8	1/2"	3/4" - 14		15.0	75.5	9.0	45.5	44.0	32.0	
OPK20592-10A10	16	- 10	5/8"	5/8" - 14		12.5	88.0	10.2	53.5	53.5	28.0	
OPK20592-10A12	16	- 10	5/8"	3/4" - 14		15.0	88.0	9.0	55.0	53.5	32.0	
OPK20592-12A12	19	- 12	3/4"	3/4" - 14		15.0	98.0	9.0	59.5	61.5	32.0	
OPK20592-12A16	19	- 12	3/4"	1" - 11		19.8	98.0	10.5	62.0	61.5	38.0	
OPK20592-16A16	25	- 16	1"	1" - 11		19.8	127.5	10.5	76.0	79.5	38.0	

OPK20592: THRUST WIRE NUT / OPK20593: SLIP-ON NUT



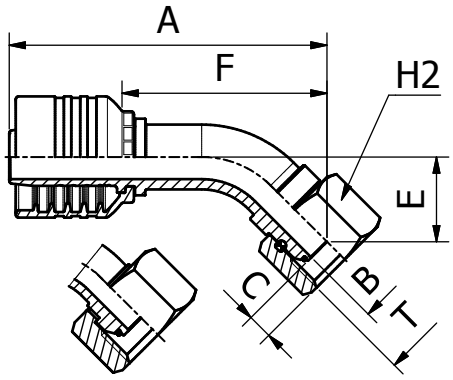
BS STANDARD CONNECTIONS

OPK20812/OPK20813

BSP
O-RING FEMALE 60° CONE
BS5200 / ISO 12151-6

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	F	H2		
OPK20812-06A04	10	- 6	3/8"	1/4" - 19		4.1	47.5	4.1	18.0	19.0		
OPK20813-06A06	10	- 6	3/8"	3/8" - 19		7.0	49.0	6.0	19.5	22.0		
OPK20813-08A08	12	- 8	1/2"	1/2" - 14		9.3	51.5	6.3	20.5	27.0		
OPK20812-10A10	16	- 10	5/8"	5/8" - 14		12.5	56.5	9.7	22.0	28.0		
OPK20812-12A12	19	- 12	3/4"	3/4" - 14		15.0	61.5	8.5	25.0	32.0		
OPK20812-16A16	25	- 16	1"	1" - 11		19.8	75.5	10.6	27.5	38.0		
OPK20812-16A20	25	- 16	1"	1.1/4" - 11		26.1	79.0	10.5	31.0	50.0		
OPK20812-20A20	31	- 20	1.1/4"	1.1/4" - 11		26.0	84.0	10.5	31.5	50.0		
OPK20812-20A24	31	- 20	1.1/4"	1.1/2" - 11		32.1	82.0	12.5	29.5	60.0		
OPK20812-24A24	38	- 24	1.1/2"	1.1/2" - 11		32.0	92.5	12.5	30.5	60.0		
OPK20812-24A32	38	- 24	1.1/2"	2"		42.1	92.0	16.1	30.0	70.0		
OPK20812-32A32	51	- 32	2"	2"		42.0	98.0	16.1	32.0	70.0		

OPK20812: THRUST WIRE NUT / OPK20813: SLIP-ON NUT



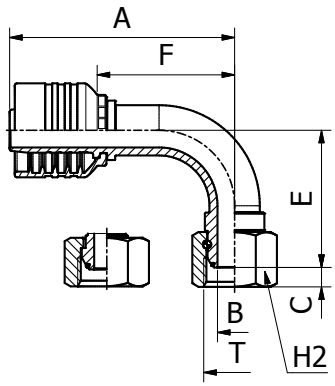
BS STANDARD CONNECTIONS

OPK20842/OPK20843

45° BSP
O-RING FEMALE SWEPT ELBOW 60° CONE
BS5200 / ISO 12151-6

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	F	H2	
OPK20843-06A06	10	- 6	3/8"	3/8" - 19		7.0	71.5	6.0	15.5	42.0	22.0	
OPK20843-08A08	12	- 8	1/2"	1/2" - 14		9.3	81.0	6.3	17.0	49.5	27.0	
OPK20842-10A10	16	- 10	5/8"	5/8" - 14		12.5	98.0	9.7	27.5	63.5	28.0	
OPK20842-12A12	19	- 12	3/4"	3/4" - 14		15.0	107.5	8.5	29.0	71.0	32.0	
OPK20842-20A20	31	- 20	1.1/4"	1.1/4" - 11		26.0	154.0	10.5	39.0	101.5	50.0	
OPK20842-24A24	38	- 24	1.1/2"	1.1/2" - 11		32.0	180.0	12.5	45.0	118.0	60.0	
OPK20842-16A16	25	- 16	1"	1" - 11		19.8	138.5	10.6	35.5	90.5	38.0	
OPK20842-32A32	51	- 32	2"	2" - 11		42.0	200.0	16.1	47.0	134.0	70.0	

OPK20842: THRUST WIRE NUT / OPK20843: SLIP-ON NUT



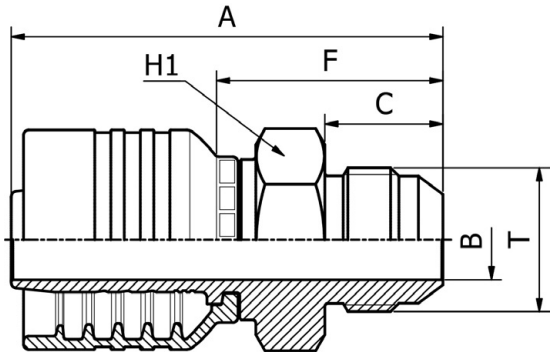
BS STANDARD CONNECTIONS

OPK20892/OPK20893

90° BSP
O-RING FEMALE SWEPT ELBOW 60° CONE
BS5200 / ISO 12151-6

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	F	H2	
OPK20892-06A04	10	- 6	3/8"	1/4" - 19		4.1	65.0	4.1	33.0	35.5	19.0	
OPK20893-06A06	10	- 6	3/8"	3/8" - 19		7.0	66.0	6.0	31.5	36.5	22.0	
OPK20893-08A08	12	- 8	1/2"	1/2" - 14		9.3	76.0	6.3	36.5	45.0	27.0	
OPK20892-10A10	16	- 10	5/8"	5/8" - 14		12.5	87.5	9.7	55.0	53.0	28.0	
OPK20892-12A12	19	- 12	3/4"	3/4" - 14		15.0	98.0	8.5	60.0	61.5	32.0	
OPK20892-16A20	25	- 16	1"	1.1/4" - 11		26.1	127.5	10.5	78.5	79.5	50.0	
OPK20892-16A16	25	- 16	1"	1" - 11		19.8	127.5	10.6	76.0	79.5	38.0	
OPK20892-20A20	31	- 20	1.1/4"	1.1/4" - 11		26.0	143.0	10.5	83.5	90.5	50.0	
OPK20892-20A24	31	- 20	1.1/4"	1.1/2" - 11		32.1	143.0	12.5	84.5	90.5	60.0	
OPK20892-24A24	38	- 24	1.1/2"	1.1/2" - 11		32.0	170.0	12.5	98.5	108.0	60.0	
OPK20892-32A32	51	- 32	2"	2" - 11		42.0	197.0	16.1	110.5	131.0	70.0	

OPK20892: THRUST WIRE NUT / OPK20893: SLIP-ON NUT

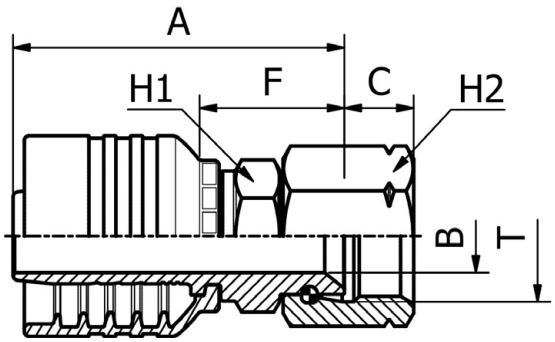


SAE STANDARD CONNECTIONS

OPK12510

JIC
MALE 37° CONE
SAE J516 / ISO 12151-5

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	F	H1		
OPK12510-06A06	10	- 6	3/8"	9/16" - 18		7.0	59.0	14.0	29.5	17.0		
OPK12510-06A08	10	- 6	3/8"	3/4" - 16		9.3	63.5	16.5	34.0	19.0		
OPK12510-06A10	10	- 6	3/8"	7/8" - 14		12.5	68.0	19.5	38.5	24.0		
OPK12510-08A06	12	- 8	1/2"	9/16" - 18		7.0	63.0	14.0	32.0	19.0		
OPK12510-08A08	12	- 8	1/2"	3/4" - 16		9.3	65.5	16.5	34.5	19.0		
OPK12510-08A10	12	- 8	1/2"	7/8" - 14		12.5	70.0	19.5	39.0	24.0		
OPK12510-08A12	12	- 8	1/2"	1.1/16" - 12		15.0	74.0	22.0	43.0	27.0		
OPK12510-10A10	16	- 10	5/8"	7/8" - 14		12.5	73.5	19.5	39.0	24.0		
OPK12510-10A12	16	- 10	5/8"	1.1/16" - 12		15.0	77.0	22.0	42.5	27.0		
OPK12510-12A10	19	- 12	3/4"	7/8" - 14		12.5	78.0	19.5	41.5	27.0		
OPK12510-12A12	19	- 12	3/4"	1.1/16" - 12		15.0	80.5	22.0	44.0	27.0		
OPK12510-12A14	19	- 12	3/4"	1.3/16" - 12		15.0	81.0	22.5	44.5	32.0		
OPK12510-12A16	19	- 12	3/4"	1.5/16" - 12		19.8	83.5	23.0	47.0	34.0		
OPK12510-16A12	25	- 16	1"	1.1/16" - 12		15.0	93.0	22.0	45.0	32.0		
OPK12510-16A16	25	- 16	1"	1.5/16" - 12		19.8	96.0	23.0	48.0	34.0		
OPK12510-16A20	25	- 16	1"	1.5/8" - 12		26.0	101.0	24.3	53.0	42.0		
OPK12510-20A20	31	- 20	1.1/4"	1.5/8" - 12		26.0	106.0	24.3	53.5	42.0		
OPK12510-20A24	31	- 20	1.1/4"	1.7/8" - 12		32.0	113.0	27.5	60.5	50.0		
OPK12510-24A24	38	- 24	1.1/2"	1.7/8" - 12		32.0	122.5	27.5	60.5	50.0		
OPK12510-32A32	51	- 32	2"	2.1/2" - 12		42.0	138.0	34.0	72.0	65.0		

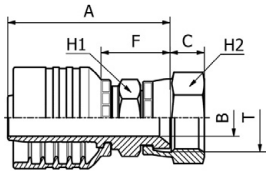


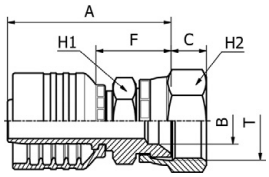
SAE STANDARD CONNECTIONS

OPK22712

JIC
FEMALE 37° CONE SEAT DOUBLE HEXAGON
SAE J516 / ISO 12151-5
(THRUST-WIRE NUT)

PART. REF.	HOSE BORE		Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	F	H1	H2	
OPK22712-12A16	19	- 12	3/4"	1.5/16" - 12		19.8	69.0	15.0	32.5	32.0	38.0	
OPK22712-16A20	25	- 16	1"	1.5/8" - 12		26.0	91.0	16.2	43.0	41.0	50.0	
OPK22712-20A20	31	- 20	1.1/4"	1.5/8" - 12		26.0	96.0	16.2	43.5	41.0	50.0	





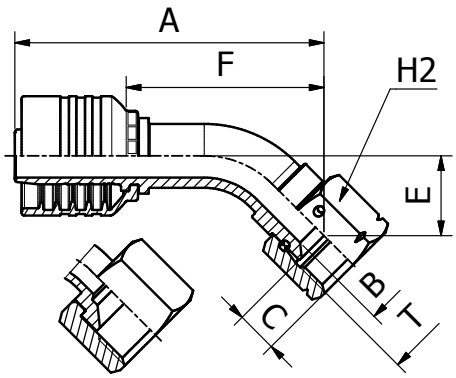
SAE STANDARD CONNECTIONS

OPK22711/OPK22711KR

JIC
FEMALE 37° CONE SEAT DOUBLE HEXAGON
SAE J516 / ISO 12151-5

PART. REF.	HOSE BORE		Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	F	H1	H2	
OPK22711-06A06KR	10	- 6	3/8"	9/16" - 18		7.0	51.5	9.5	22.0	17.0	17.0	
OPK22711-06A08KR	10	- 6	3/8"	3/4" - 16		9.3	56.0	10.7	26.5	19.0	22.0	
OPK22711-08A08KR	12	- 8	1/2"	3/4" - 16		9.3	58.0	10.7	27.0	19.0	22.0	
OPK22711-08A10KR	12	- 8	1/2"	7/8" - 14		9.3	60.5	12.5	29.5	22.0	25.0	
OPK22711-08A12KR	12	- 8	1/2"	1.1/16" - 12		15.0	60.0	14.1	28.5	27.0	32.0	
OPK22711-10A08KR	16	- 10	5/8"	3/4" - 16		9.3	62.5	10.7	28.5	22.0	22.0	
OPK22711-10A10KR	16	- 10	5/8"	7/8" - 14		12.5	64.0	12.5	29.5	22.0	25.0	
OPK22711-16A12KR	25	- 16	1"	1.1/16" - 12		15.0	80.5	14.1	32.5	32.0	32.0	
OPK22711-12A08KR	19	- 12	3/4"	3/4" - 16		9.3	66.0	10.7	29.5	27.0	22.0	
OPK22711-12A10KR	19	- 12	3/4"	7/8" - 14		12.5	67.0	12.5	30.5	27.0	25.0	
OPK22711-12A12KR	19	- 12	3/4"	1.1/16" - 12		15.0	66.5	14.1	30.0	27.0	32.0	
OPK22711-12A16	19	- 12	3/4"	1.5/16" - 12		19.8	71.0	15.3	34.5	32.0	38.0	
OPK22711-16A16	25	- 16	1"	1.5/16" - 12		19.8	83.5	15.3	35.5	32.0	38.0	

KR: CRIMPED BACK KOMPACT ROBUST NUT



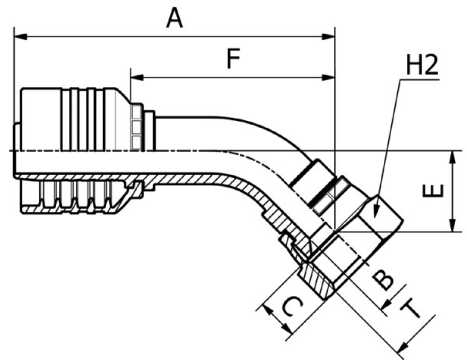
SAE STANDARD CONNECTIONS

OPK22542/OPK22543

45° JIC
FEMALE SWEPT ELBOW 37° CONE SEAT
SAE J516 / ISO 12151-5

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	F	H2	
OPK22542-06A06	10	- 6	3/8"	9/16" - 18		7.0	71.5	9.2	16.5	42.0	19.0	
OPK22543-06A08	10	- 6	3/8"	3/4" - 16		7.0	70.5	10.1	14.0	41.0	22.0	
OPK22543-06A10	10	- 6	3/8"	7/8" - 14		9.3	72.0	12.4	15.5	42.5	27.0	
OPK22542-08A08	12	- 8	1/2"	3/4" - 16		9.3	83.0	10.2	20.0	52.0	22.0	
OPK22543-08A10	12	- 8	1/2"	7/8" - 14		9.3	80.5	12.4	17.0	49.5	27.0	
OPK22543-08A12	12	- 8	1/2"	1.1/16" - 12		12.5	80.5	14.1	17.0	49.5	32.0	
OPK22542-10A10	16	- 10	5/8"	7/8" - 14		12.5	96.5	12.3	25.5	62.0	27.0	
OPK22543-10A12	16	- 10	5/8"	1.1/16" - 12		12.5	94.5	14.1	24.0	60.0	32.0	
OPK22542-12A12	19	- 12	3/4"	1.1/16" - 12		15.0	106.0	14.2	27.5	70.0	32.0	
OPK22542-12A14	19	- 12	3/4"	1.3/16" - 12		15.0	106.0	14.3	27.5	69.5	36.0	
OPK22542-12A16	19	- 12	3/4"	1.5/16" - 12		19.8	106.5	15.0	27.5	70.0	38.0	
OPK22542-16A16	25	- 16	1"	1.5/16" - 12		19.8	132.5	15.0	32.0	84.0	38.0	
OPK22542-16A20	25	- 16	1"	1.5/8" - 12		26.0	138.0	16.2	36.0	90.0	50.0	
OPK22542-20A20	31	- 20	1.1/4"	1.5/8" - 12		26.0	156.0	16.2	41.5	103.5	50.0	
OPK22542-20A24	31	- 20	1.1/4"	1.7/8" - 12		32.0	159.0	18.8	44.5	106.5	60.0	
OPK22542-24A24	38	- 24	1.1/2"	1.7/8" - 12		32.0	181.0	18.8	46.5	119.0	60.0	
OPK22542-32A32	51	- 32	2"	2.1/2" - 12		44.0	229.0	24.0	68.0	163.0	75.0	

OPK22542: THRUST WIRE NUT / OPK22543: SLIP-ON NUT

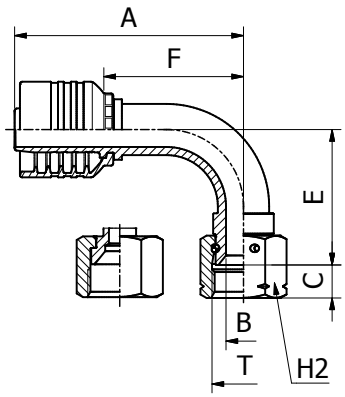


SAE STANDARD CONNECTIONS

OPK22541KR

45° ELBOW JIC
FEMALE 37° CONE SEAT
SAE J516 / ISO 12151-5
(CRIMPED-BACK NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	F	H2	
OPK22541-06A06KR	10	- 6	3/8"	9/16" - 18		7.0	71.5	9.5	16.0	42.0	17.0	
OPK22541-08A08KR	12	- 8	1/2"	3/4" - 16		9.3	83.0	10.7	20.0	52.0	22.0	
OPK22541-10A10KR	16	- 10	5/8"	7/8" - 14		12.5	95.5	12.5	22.5	61.0	25.0	
OPK22541-12A12KR	19	- 12	3/4"	1.1/16" - 12		15.0	105.5	14.1	26.5	69.0	32.0	



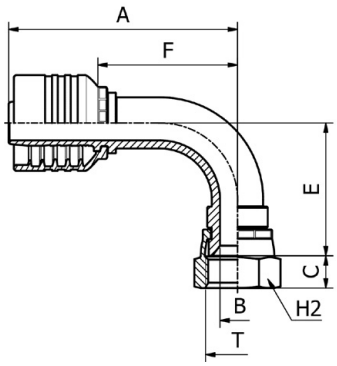
SAE STANDARD CONNECTIONS

OPK22592/OPK22593

90° JIC
FEMALE SWEPT ELBOW 37° CONE SEAT
SAE J516 / ISO 12151-5

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	F	H2	
OPK22592-06A05	10	- 6	3/8"	1/2" - 20		5.5	59.5	9.1	26.5	30.0	17.0	
OPK22592-06A06	10	- 6	3/8"	9/16" - 18		7.0	65.0	9.2	32.5	35.5	19.0	
OPK22593-06A08	10	- 6	3/8"	3/4" - 16		7.0	66.0	10.1	29.5	36.5	22.0	
OPK22593-06A10	10	- 6	3/8"	7/8" - 14		9.3	66.0	12.4	31.5	36.5	27.0	
OPK22592-08A06	12	- 8	1/2"	9/16" - 18		7.0	68.0	9.2	33.0	37.0	19.0	
OPK22592-08A08	12	- 8	1/2"	3/4" - 16		9.3	75.5	10.2	41.0	44.0	22.0	
OPK22593-08A10	12	- 8	1/2"	7/8" - 14		9.3	76.0	12.4	36.0	45.0	27.0	
OPK22593-08A12	12	- 8	1/2"	1.1/16" - 12		12.5	76.0	14.1	36.0	45.0	32.0	
OPK22592-10A10	16	- 10	5/8"	7/8" - 14		12.5	88.0	12.3	52.5	53.5	27.0	
OPK22593-10A12	16	- 10	5/8"	1.1/16" - 12		12.5	86.0	14.1	50.0	51.5	32.0	
OPK22592-12A10	19	- 12	3/4"	7/8" - 14		12.5	91.5	12.3	52.5	55.0	27.0	
OPK22592-12A12	19	- 12	3/4"	1.1/16" - 12		15.0	98.0	14.2	58.0	62.0	32.0	
OPK22592-12A14	19	- 12	3/4"	1.3/16" - 12		15.0	99.0	14.3	58.0	63.0	36.0	
OPK22592-12A16	19	- 12	3/4"	1.5/16" - 12		19.8	99.0	15.0	57.5	63.0	38.0	
OPK22592-16A16	25	- 16	1"	1.5/16" - 12		19.8	124.0	15.0	68.5	76.0	38.0	
OPK22592-16A20	25	- 16	1"	1.5/8" - 12		26.0	125.5	16.2	74.5	77.5	50.0	
OPK22592-20A20	31	- 20	1.1/4"	1.5/8" - 12		26.0	143.0	16.2	86.5	90.5	50.0	
OPK22592-20A24	31	- 20	1.1/4"	1.7/8" - 12		32.0	143.0	18.8	90.5	90.5	60.0	
OPK22592-24A24	38	- 24	1.1/2"	1.7/8" - 12		32.0	170.0	18.8	100.5	108.0	60.0	
OPK22592-32A32	51	- 32	2"	2.1/2" - 12		44.0	208.0	24.0	137.0	142.0	75.0	

OPK22592: THRUST WIRE NUT / OPK22593: SLIP-ON NUT

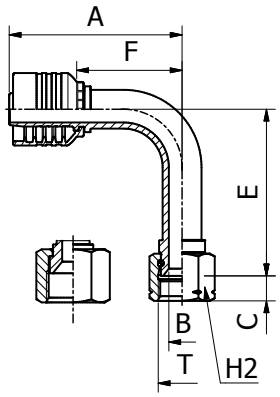


SAE STANDARD CONNECTIONS

OPK22591KR

90° ELBOW JIC
FEMALE 37° CONE SEAT SAE
J516 / ISO 12151-5
(CRIMPED-BACK NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	F	H2	
OPK22591-06A06KR	10	- 6	3/8"	9/16" - 18		7.0	65.0	9.5	32.0	35.5	17.0	
OPK22591-08A08KR	12	- 8	1/2"	3/4" - 16		9.3	75.5	10.7	40.5	44.0	22.0	
OPK22591-10A10KR	16	- 10	5/8"	7/8" - 14		12.5	88.0	12.5	47.0	53.5	25.0	
OPK22591-12A12KR	19	- 12	3/4"	1.1/16" - 12		15.0	98.0	14.1	57.0	62.0	32.0	



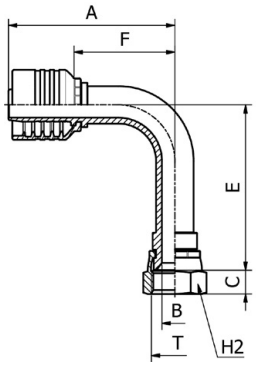
SAE STANDARD CONNECTIONS

OPK24792/OPK24793

90° JIC
FEMALE LONG DROP ELBOW 37° CONE SEAT
SAE J516 / ISO 12151-5

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	F	H2	
OPK24792-06A06	10	- 6	3/8"	9/16" - 18		7.0	65.0	9.2	55.0	35.5	19.0	
OPK24793-06A08	10	- 6	3/8"	3/4" - 16		7.0	66.0	10.1	61.5	36.5	22.0	
OPK24793-08A10	12	- 8	1/2"	7/8" - 14		9.3	76.0	12.4	65.0	45.0	27.0	
OPK24792-08A08	12	- 8	1/2"	3/4" - 16		9.3	75.5	10.2	61.0	44.0	22.0	
OPK24792-10A10	16	- 10	5/8"	7/8" - 14		12.5	88.0	12.3	65.5	53.5	27.0	
OPK24792-12A12	19	- 12	3/4"	1.1/16" - 12		15.0	98.0	14.2	94.5	62.0	32.0	
OPK24792-16A16	25	- 16	1"	1.5/16" - 12		19.8	125.5	15.0	110.0	77.5	38.0	

OPK24792: THRUST WIRE NUT / OPK24793: SLIP-ON NUT

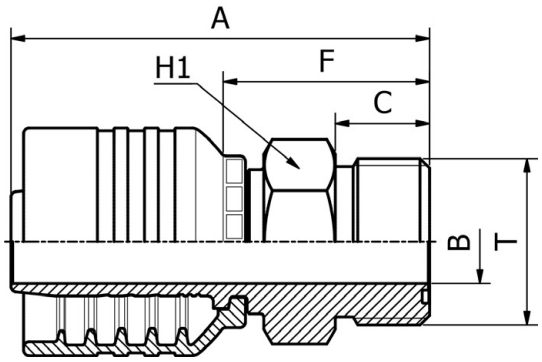


SAE STANDARD CONNECTIONS

OPK24791KR

90° LONG DROP ELBOW JIC
FEMALE 37° CONE SEAT
SAE J516 / ISO 12151-5
(CRIMPED-BACK NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	F	H2	
OPK24791-06A06KR	10	- 6	3/8"	9/16" - 18		7.0	65.0	9.5	55.0	35.5	17.0	
OPK24791-08A08KR	12	- 8	1/2"	3/4" - 16		9.3	75.5	10.7	64.0	44.0	22.0	
OPK24791-10A10KR	16	- 10	5/8"	7/8" - 14		12.5	88.0	12.5	70.0	53.5	25.0	
OPK24791-12A12KR	19	- 12	3/4"	1.1/16" - 12		15.0	98.0	14.1	96.0	62.0	32.0	

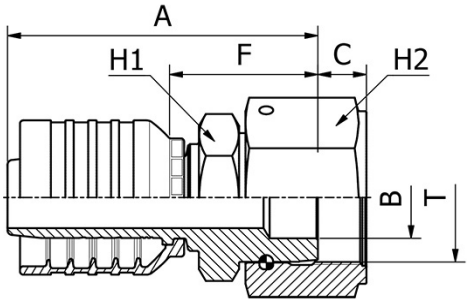


SAE STANDARD CONNECTIONS

OPK12410

ORFS
MALE
SAE J516 / ISO 12151-1

PART. REF.	HOSE BORE		Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	F	H1		
OPK12410-06A06	10	- 6	3/8"	11/16" - 16		6.7	57.0	11.2	27.5	19.0		
OPK12410-06A08	10	- 6	3/8"	13/16" - 16		9.3	59.5	12.8	30.0	22.0		
OPK12410-08A08	12	- 8	1/2"	13/16" - 16		9.3	61.5	12.8	30.5	22.0		
OPK12410-08A10	12	- 8	1/2"	1" - 14		12.5	66.0	15.5	35.0	27.0		
OPK12410-10A10	16	- 10	5/8"	1" - 14		12.5	69.0	15.5	34.5	27.0		
OPK12410-10A12	16	- 10	5/8"	1.3/16" - 12		15.0	72.0	17.0	37.5	32.0		
OPK12410-12A12	19	- 12	3/4"	1.3/16" - 12		15.0	75.5	17.0	39.0	32.0		
OPK12410-12A16	19	- 12	3/4"	1.7/16" - 12		19.8	77.0	17.5	40.5	38.0		
OPK12410-16A16	25	- 16	1"	1.7/16" - 12		19.8	90.0	17.5	42.0	38.0		
OPK12410-20A20	31	- 20	1.1/4"	1.11/16" - 12		26.0	99.0	17.5	46.5	46.0		
OPK12410-24A24	38	- 24	1.1/2"	2" - 12		32.0	110.5	17.5	48.5	55.0		

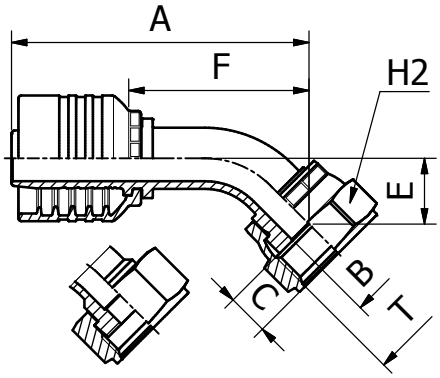


SAE STANDARD CONNECTIONS

OPK22411

ORFS
FEMALE
SAE J516 / ISO 12151-1
PULLBACK TYPE

PART. REF.	HOSE BORE		Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	F	H1	H2	
OPK22411-06A06	10	- 6	3/8"	11/16" - 16		7.0	60.5	9.5	31.0	16.0	22.0	
OPK22411-06A08	10	- 6	3/8"	13/16" - 16		9.3	65.0	11.0	35.5	19.0	24.0	
OPK22411-08A06	12	- 8	1/2"	11/16" - 16		7.0	63.0	9.5	32.0	19.0	22.0	
OPK22411-08A08	12	- 8	1/2"	13/16" - 16		9.3	67.0	11.0	36.0	19.0	24.0	
OPK22411-08A10	12	- 8	1/2"	1" - 14		11.5	69.5	13.5	38.5	24.0	30.0	
OPK22411-08A12	12	- 8	1/2"	1.3/16" - 12		13.9	73.0	14.5	42.0	28.0	36.0	
OPK22411-10A10	16	- 10	5/8"	1" - 14		11.5	73.0	13.5	38.5	24.0	30.0	
OPK22411-10A12	16	- 10	5/8"	1.3/16" - 12		13.9	76.5	14.5	42.0	28.0	36.0	
OPK22411-12A10	19	- 12	3/4"	1" - 14		11.5	77.5	13.5	41.0	28.0	30.0	
OPK22411-12A12	19	- 12	3/4"	1.3/16" - 12		13.9	80.0	14.5	43.5	28.0	36.0	
OPK22411-12A16	19	- 12	3/4"	1.7/16" - 12		19.8	82.0	15.0	45.5	36.0	41.0	
OPK22411-16A12	25	- 16	1"	1.3/16" - 12		13.9	94.0	13.5	48.0	36.0	36.0	
OPK22411-16A16	25	- 16	1"	1.7/16" - 12		19.8	94.5	15.0	46.5	36.0	41.0	
OPK22411-16A20	25	- 16	1"	1.11/16" - 12		26.0	97.5	14.8	49.5	41.0	50.0	
OPK22411-20A20	31	- 20	1.1/4"	1.11/16" - 12		26.0	101.5	14.8	49.0	41.0	50.0	
OPK22411-24A24	38	- 24	1.1/2"	2" - 12		32.0	116.0	15.8	54.0	50.0	60.0	



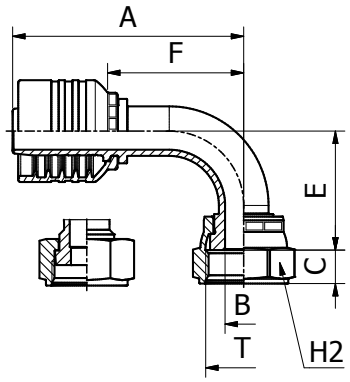
SAE STANDARD CONNECTIONS

OPK22441/OPK22443

45° ORFS
FEMALE ELBOW
SAE J516 / ISO 12151-1

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	F	H2	
OPK22443-06A06	10	- 6	3/8"	11/16" - 16		6.0	61.5	9.5	11.0	32.5	22.0	
OPK22443-06A08	10	- 6	3/8"	13/16" - 16		9.3	63.0	11.0	12.5	34.0	24.0	
OPK22441-08A06	12	- 8	1/2"	11/16" - 16		7.0	63.5	9.5	11.0	32.5	22.0	
OPK22443-08A08	12	- 8	1/2"	13/16" - 16		9.0	73.0	11.0	13.0	42.0	24.0	
OPK22443-08A10	12	- 8	1/2"	1" - 14		11.5	73.0	13.5	13.5	42.0	30.0	
OPK22443-08A12	12	- 8	1/2"	1.3/16" - 12		13.9	78.0	14.5	18.5	46.5	36.0	
OPK22443-10A10	16	- 10	5/8"	1" - 14		11.5	83.5	13.5	16.0	49.0	30.0	
OPK22443-10A12	16	- 10	5/8"	1.3/16" - 12		13.9	86.0	14.5	18.5	51.5	36.0	
OPK22441-12A10	19	- 12	3/4"	1" - 14		11.5	87.0	13.5	16.5	50.5	30.0	
OPK22443-12A12	19	- 12	3/4"	1.3/16" - 12		13.9	97.0	14.5	21.5	60.5	36.0	
OPK22443-12A16	19	- 12	3/4"	1.7/16" - 12		19.8	96.5	14.8	21.0	60.0	41.0	
OPK22443-16A16	25	- 16	1"	1.7/16" - 12		19.8	120.0	14.8	23.5	72.0	41.0	
OPK22443-16A20	25	- 16	1"	1.11/16" - 12		26.0	122.0	14.8	25.0	74.0	50.0	
OPK22443-20A20	31	- 20	1.1/4"	1.11/16" - 12		26.0	134.5	14.8	27.0	82.0	50.0	

OPK22442: THRUST WIRE NUT / OPK22443: SLIP-ON NUT



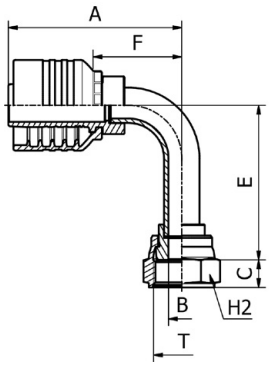
SAE STANDARD CONNECTIONS

OPK22491/OPK22493

90° ORFS
FEMALE ELBOW
SAE J516 / ISO 12151-1

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	F	H2	
OPK22493-06A06	10	- 6	3/8"	11/16" - 16		6.0	59.5	9.5	24.0	30.0	22.0	
OPK22493-06A08	10	- 6	3/8"	13/16" - 16		9.3	59.5	11.0	26.5	30.0	24.0	
OPK22491-08A06	12	- 8	1/2"	11/16" - 16		7.0	61.5	9.5	24.5	30.0	22.0	
OPK22493-08A08	12	- 8	1/2"	13/16" - 16		9.0	71.5	11.0	30.0	40.5	24.0	
OPK22493-08A10	12	- 8	1/2"	1" - 14		11.5	71.0	13.5	30.5	40.0	30.0	
OPK22493-08A12	12	- 8	1/2"	1.3/16" - 12		13.9	71.0	14.5	37.5	39.5	36.0	
OPK22493-10A10	16	- 10	5/8"	1" - 14		11.5	82.5	13.5	37.5	48.0	30.0	
OPK22493-10A12	16	- 10	5/8"	1.3/16" - 12		13.9	82.5	14.5	41.0	48.0	36.0	
OPK22491-12A10	19	- 12	3/4"	1" - 14		11.5	85.5	13.5	38.0	49.0	30.0	
OPK22493-12A12	19	- 12	3/4"	1.3/16" - 12		13.9	93.0	14.5	48.0	56.5	36.0	
OPK22493-12A16	19	- 12	3/4"	1.7/16" - 12		19.8	93.0	14.8	47.5	56.5	41.0	
OPK22491-16A12	25	- 16	1"	1.3/16" - 12		13.9	106.0	13.5	48.0	57.5	36.0	
OPK22493-16A16	25	- 16	1"	1.7/16" - 12		19.8	119.5	14.8	56.0	71.5	41.0	
OPK22493-16A20	25	- 16	1"	1.11/16" - 12		26.0	119.5	14.8	58.5	71.5	50.0	
OPK22493-20A20	31	- 20	1.1/4"	1.11/16" - 12		26.0	135.5	14.8	66.0	83.0	50.0	
OPK22493-24A24	38	- 24	1.1/2"	2" - 12		32.0	164.0	14.8	79.5	102.0	60.0	

OPK22492: THRUST WIRE NUT / OPK22493: SLIP-ON NUT



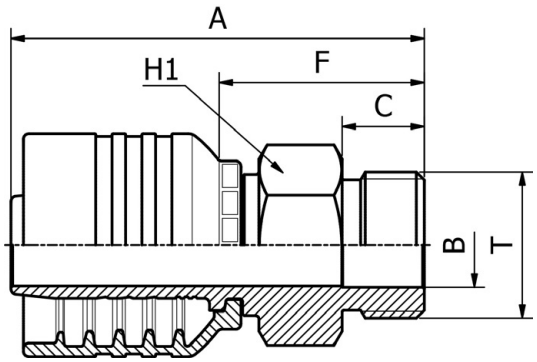
SAE STANDARD CONNECTIONS

OPK24491

90° ORFS
FEMALE LONG DROP ELBOW
SAE J516 / ISO 12151-1
(CRIMPED-BACK NUT)

PART. REF.	HOSE BORE		Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	F	H2	
OPK24491-06A06	10	- 6	3/8"	11/16" - 16		6.7	61.5	9.5	54.0	32.0	22.0	
OPK24491-06A08	10	- 6	3/8"	13/16" - 16		6.7	61.5	11.0	54.0	32.0	24.0	
OPK24491-08A08	12	- 8	1/2"	13/16" - 16		9.6	68.0	11.0	64.0	37.0	24.0	
OPK24491-08A10	12	- 8	1/2"	1" - 14		9.6	68.0	12.5	64.5	37.0	30.0	
OPK24491-10A10	16	- 10	5/8"	1" - 14		12.0	75.5	13.0	70.0	41.0	30.0	
OPK24491-10A12	16	- 10	5/8"	1.3/16" - 12		12.7	75.5	13.5	73.0	41.0	36.0	
OPK24491-12A12	19	- 12	3/4"	1.3/16" - 12		15.0	95.0	13.5	96.0	58.5	36.0	
OPK24491-16A16	25	- 16	1"	1.7/16" - 12		19.8	119.5	13.5	114.0	71.5	41.0	

All items made by brazing with the exception of OPK24491-12-12 and OPK24491-16-16

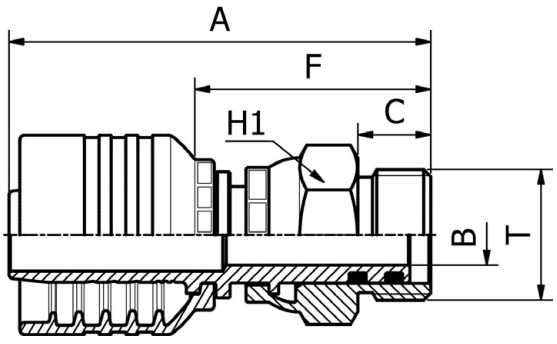


SAE STANDARD CONNECTIONS

OPK13010

SAE
MALE O'RING BOSS TYPE

PART. REF.	HOSE BORE		Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	F	H1		
OPK13010-08A08	12	- 8	1/2"	3/4" - 16		9.9	60.0	11.1	29.0	22.0		
OPK13010-12A12	19	- 12	3/4"	1.1/16" - 12		15.5	76.0	15.1	39.5	32.0		
OPK13010-16A16	25	- 16	1"	1.5/16" - 12		21.5	89.5	15.1	41.0	38.0		



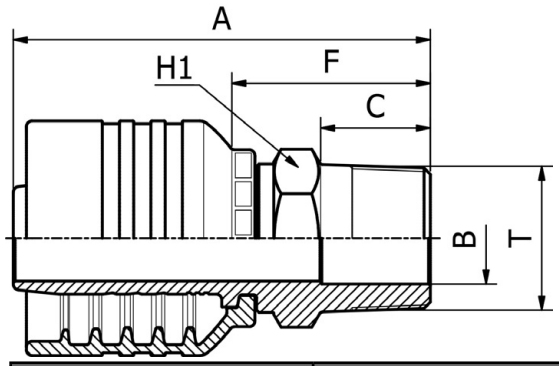
SAE STANDARD CONNECTIONS

OPK14310

SAE
SWIVEL MALE O'RING BOSS TYPE

PART. REF.	HOSE BORE		Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	F	H2		
OPK14310-08A08	12	- 8	1/2"	3/4" - 16		9.3	84.0	11.1	53.0	27.0		

Not to be used as a live swivel

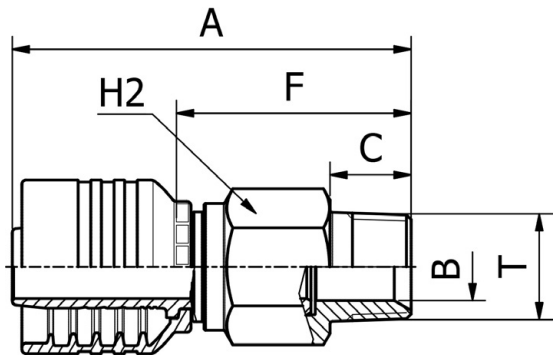


SAE STANDARD CONNECTIONS

OPK12810

NPTF
MALE 60° CONE SEAT
SAE J516/J514

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	F	H1		
OPK12810-06A04	10	- 6	3/8"	1/4" - 18		5.5	59.5	14.5	30.0	14.0		
OPK12810-06A06	10	- 6	3/8"	3/8" - 18		9.3	58.0	14.5	28.5	19.0		
OPK12810-06A08	10	- 6	3/8"	1/2" - 14		12.5	64.0	19.2	34.5	24.0		
OPK12810-08A06	12	- 8	1/2"	3/8" - 18		9.3	60.0	14.5	29.0	19.0		
OPK12810-08A08	12	- 8	1/2"	1/2" - 14		12.5	66.0	19.2	35.0	24.0		
OPK12810-08A12	12	- 8	1/2"	3/4" - 14		15.5	66.5	19.2	35.5	27.0		
OPK12810-10A08	16	- 10	5/8"	1/2" - 14		12.5	73.0	19.2	38.5	24.0		
OPK12810-10A12	16	- 10	5/8"	3/4" - 14		16.0	74.5	19.2	40.0	27.0		
OPK12810-12A08	19	- 12	3/4"	1/2" - 14		12.5	73.0	19.2	36.5	27.0		
OPK12810-12A12	19	- 12	3/4"	3/4" - 14		16.0	73.0	19.2	36.5	27.0		
OPK12810-12A16	19	- 12	3/4"	1" - 11,5		19.8	82.5	24.2	46.0	36.0		
OPK12810-16A20	25	- 16	1"	1.1/4" - 11,5		26.0	104.5	25.0	56.5	46.0		
OPK12810-16A12	25	- 16	1"	3/4" - 14		15.5	87.0	19.2	39.0	32.0		
OPK12810-16A16	25	- 16	1"	1" - 11,5		19.8	92.0	24.2	44.0	36.0		
OPK12810-20A20	31	- 20	1.1/4"	1.1/4" - 11,5		26.0	109.0	25.0	56.5	46.0		
OPK12810-24A24	38	- 24	1.1/2"	1.1/2" - 11,5		32.0	119.5	26.0	57.5	50.0		
OPK12810-32A32	51	- 32	2"	2" - 11,5		45.0	130.5	26.5	64.5	65.0		



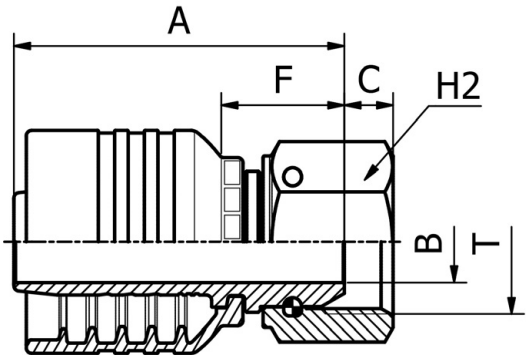
SAE STANDARD CONNECTIONS

OPK14110R

NPTF
SWIVEL MALE 60° CONE SEAT
SAE J516/J514

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	F	H2		
OPK14110-06A04R	10	- 6	3/8"	1/4" - 18		4.0	80.0	14.5	50.5	22.0		
OPK14110-06A06R	10	- 6	3/8"	3/8" - 18		7.0	80.0	14.5	50.5	22.0		
OPK14110-08A08R	12	- 8	1/2"	1/2" - 14		9.3	90.0	19.2	59.0	27.0		
OPK14110-12A12R	19	- 12	3/4"	3/4" - 14		16.0	94.5	19.2	58.0	32.0		
OPK14110-16A16R	25	- 16	1"	1" - 11.5		19.8	114	24.2	66.0	38.0		

Not to be used as a live swivel

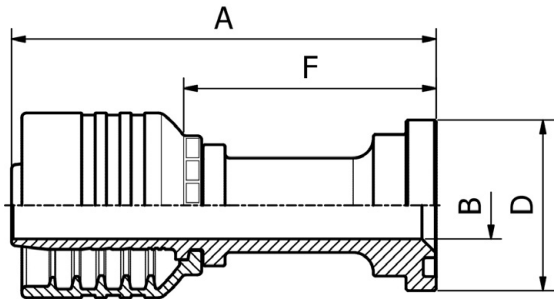


SAE STANDARD CONNECTIONS

OPK22812

NPSM
FEMALE 60° CONE
SAE J516/J514
(THRUST-WIRE NUT)

PART. REF.	HOSE BORE		Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	F	H2		
OPK22812-06A06	10	- 6	3/8"	3/8" - 18		7.0	50.5	6.0	21.0	22.0		
OPK22812-08A08	12	- 8	1/2"	1/2" - 14		9.3	54.0	6.5	23.0	27.0		
OPK22812-12A12	19	- 12	3/4"	3/4" - 14		15.0	61.0	9.0	24.5	32.0		
OPK22812-16A16	25	- 16	1"	1" - 11,5		19.8	75.5	10.5	27.5	38.0		



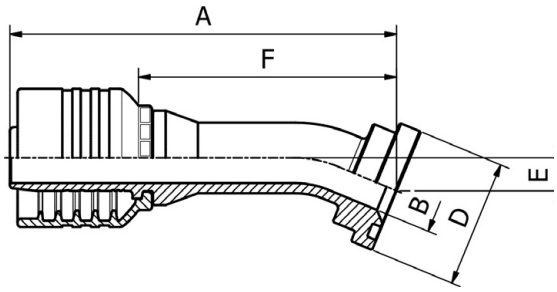
SAE STANDARD CONNECTIONS

OPK23311

ISO / SAE
CODE 61 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE		Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	F			
OPK23311-08A08	12	- 8	1/2"	1/2"		9.3	82.0	30.3	51.0			
OPK23311-08A12	12	- 8	1/2"	3/4"		15.1	89.0	38.0	58.0			
OPK23311-10A12	16	- 10	5/8"	3/4"		15.0	100.0	38.0	65.5			
OPK23311-12A12	19	- 12	3/4"	3/4"		15.0	94.5	38.0	58.0			
OPK23311-12A16	19	- 12	3/4"	1"		20.0	94.5	44.6	58.0			
OPK23311-16A16	25	- 16	1"	1"		19.8	112.5	44.6	64.5			
OPK23311-16A20	25	- 16	1"	1.1/4"		26.0	118.5	51.0	70.5			
OPK23311-20A20	31	- 20	1.1/4"	1.1/4"		26.0	123.0	51.0	70.5			
OPK23311-20A24	31	- 20	1.1/4"	1.1/2"		32.0	125.0	60.5	72.5			
OPK23311-24A24	38	- 24	1.1/2"	1.1/2"		32.0	137.5	60.5	75.5			
OPK23311-24A32	38	- 24	1.1/2"	2"		42.0	137.5	71.6	75.5			
OPK23311-32A32	51	- 32	2"	2"		42.0	145.0	71.6	79.0			
OPK23311-32A40	51	- 32	2"	2.1/2"		56.0	147.0	84.3	81.0			

SAE STANDARD CONNECTIONS

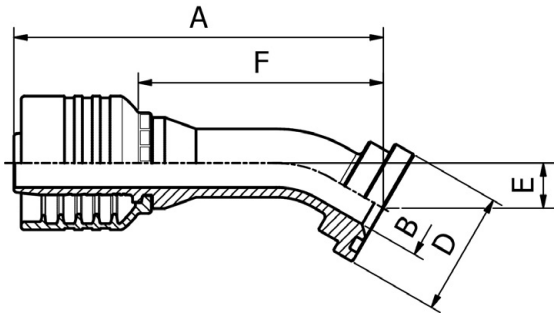


OPK23321

22,5° ISO / SAE
CODE 61 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	F		
OPK23321-08A08	12	- 8	1/2"	1/2"		9.3	95.0	30.3	8.0	64.0		
OPK23321-12A12	19	- 12	3/4"	3/4"		15.0	111.0	38.0	10.0	74.5		
OPK23321-12A16	19	- 12	3/4"	1"		20.0	111.0	44.6	10.0	74.5		
OPK23321-16A16	25	- 16	1"	1"		19.8	137.0	44.6	11.5	89.0		
OPK23321-20A20	31	- 20	1.1/4"	1.1/4"		26.0	152.5	51.0	12.0	100.0		
OPK23321-20A24	31	- 20	1.1/4"	1.1/2"		32.0	154.5	60.5	13.0	102.0		

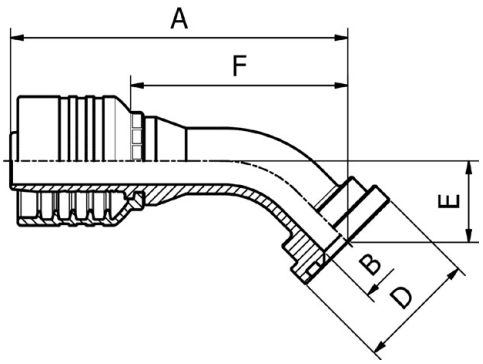
SAE STANDARD CONNECTIONS



OPK23331

30° ISO / SAE
CODE 61 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	F		
OPK23331-08A08	12	- 8	1/2"	1/2"		9.3	93.5	30.3	11.0	62.5		
OPK23331-12A12	19	- 12	3/4"	3/4"		15.0	109.5	38.0	14.0	73.0		
OPK23331-12A16	19	- 12	3/4"	1"		20.0	109.5	44.6	14.0	73.0		
OPK23331-16A16	25	- 16	1"	1"		19.8	135.0	44.6	16.5	87.0		
OPK23331-20A20	31	- 20	1.1/4"	1.1/4"		26.0	150.5	51.0	17.5	98.0		
OPK23331-24A24	38	- 24	1.1/2"	1.1/2"		32.0	176.5	60.5	20.0	114.5		

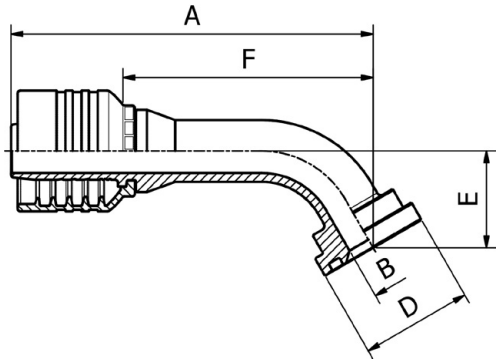


SAE STANDARD CONNECTIONS

OPK23341

45° ISO / SAE
CODE 61 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	F		
OPK23341-08A08	12	- 8	1/2"	1/2"		9.3	90.0	30.3	18.5	58.5		
OPK23341-08A12	12	- 8	1/2"	3/4"		15.0	90.5	38.0	19.0	59.5		
OPK23341-10A12	16	- 10	5/8"	3/4"		15.0	95.0	38.0	22.0	61.0		
OPK23341-12A12	19	- 12	3/4"	3/4"		15.0	104.5	38.0	23.0	68.5		
OPK23341-12A16	19	- 12	3/4"	1"		20.0	104.5	44.6	23.0	68.5		
OPK23341-16A16	25	- 16	1"	1"		19.8	129.5	44.6	27.5	81.5		
OPK23341-16A20	25	- 16	1"	1.1/4"		26.0	129.5	51.0	27.5	81.5		
OPK23341-20A20	31	- 20	1.1/4"	1.1/4"		26.0	144.5	51.0	29.5	92.0		
OPK23341-20A24	31	- 20	1.1/4"	1.1/2"		32.0	146.0	60.5	31.0	93.5		
OPK23341-24A24	38	- 24	1.1/2"	1.1/2"		32.0	169.5	60.5	34.5	107.5		
OPK23341-24A32	38	- 24	1.1/2"	2"		42.0	169.5	71.6	34.5	107.5		
OPK23341-32A32	51	- 32	2"	2"		42.0	190.0	71.6	39.0	124.0		

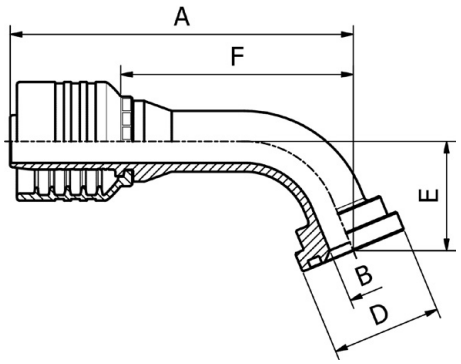


SAE STANDARD CONNECTIONS

OPK23361

60° ISO / SAE
CODE 61 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	F		
OPK23361-08A08	12	- 8	1/2"	1/2"		9.3	102.5	30.3	26.0	71.5		
OPK23361-12A12	19	- 12	3/4"	3/4"		15.0	123.5	38.0	33.0	87.0		
OPK23361-16A16	25	- 16	1"	1"		19.8	152.0	44.6	39.0	104.0		
OPK23361-16A20	25	- 16	1"	1.1/4"		26.0	152.0	51.0	39.0	104.0		
OPK23361-20A24	31	- 20	1.1/4"	1.1/2"		32.0	173.5	60.5	44.5	121.0		
OPK23361-20A20	31	- 20	1.1/4"	1.1/4"		26.0	172.5	51.0	43.0	120.0		
OPK23361-24A24	38	- 24	1.1/2"	1.1/2"		32.0	205.5	60.5	50.5	143.5		

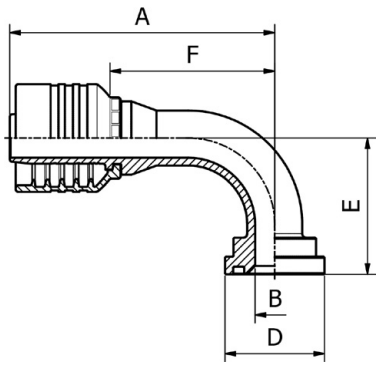


SAE STANDARD CONNECTIONS

OPK23371

67,5° ISO / SAE
CODE 61 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	F		
OPK23371-08A08	12	- 8	1/2"	1/2"		9.3	99.0	30.3	29.5	68.0		
OPK23371-12A12	19	- 12	3/4"	3/4"		15.0	118.5	38.0	38.0	82.0		
OPK23371-12A16	19	- 12	3/4"	1"		20.0	118.5	44.6	38.0	82.0		
OPK23371-16A16	25	- 16	1"	1"		19.8	147.0	44.6	45.0	98.5		
OPK23371-20A20	31	- 20	1.1/4"	1.1/4"		26.0	166.5	51.0	50.0	114.0		
OPK23371-24A24	38	- 24	1.1/2"	1.1/2"		32.0	198.5	60.5	59.0	136.5		



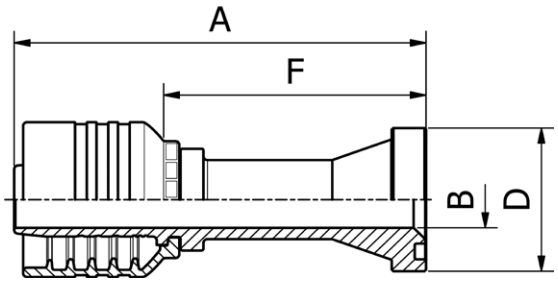
SAE STANDARD CONNECTIONS

OPK23391

90° ISO / SAE
CODE 61 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	F		
OPK23391-08A08	12	- 8	1/2"	1/2"		9.3	85.5	30.3	40.0	54.5		
OPK23391-08A12	12	- 8	1/2"	3/4"		15.0	85.5	38.0	41.0	54.5		
OPK23391-10A12	16	- 10	5/8"	3/4"		15.0	90.0	38.0	47.5	56.0		
OPK23391-12A12	19	- 12	3/4"	3/4"		15.0	101.0	38.0	52.0	64.5		
OPK23391-12A16	19	- 12	3/4"	1"		20.0	101.0	44.6	52.0	64.5		
OPK23391-16A16	25	- 16	1"	1"		19.8	125.5	44.6	62.0	77.5		
OPK23391-16A20	25	- 16	1"	1.1/4"		26.0	125.5	51.0	62.0	77.5		
OPK23391-20A20	31	- 20	1.1/4"	1.1/4"		26.0	143.0	51.0	70.0	90.5		
OPK23391-20A24	31	- 20	1.1/4"	1.1/2"		32.0	143.0	60.5	72.0	90.5		
OPK23391-24A24	38	- 24	1.1/2"	1.1/2"		32.0	170.0	60.5	84.0	108.0		
OPK23391-24A32	38	- 24	1.1/2"	2"		42.0	170.0	71.6	84.0	108.0		
OPK23391-32A32	51	- 32	2"	2"		42.0	195.0	71.6	99.0	129.0		

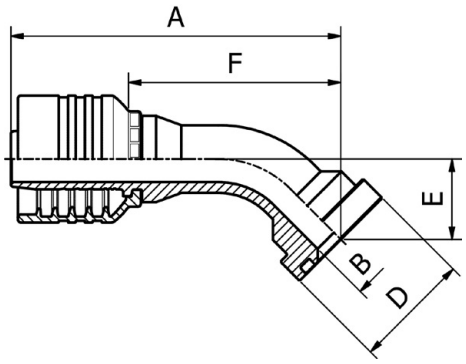
SAE STANDARD CONNECTIONS



OPK23611

ISO / SAE
CODE 62 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE		Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	F			
OPK23611-08A08	12	- 8	1/2"	1/2"		9.3	83.0	31.8	52.0			
OPK23611-08A12	12	- 8	1/2"	3/4"		15.0	99.5	41.5	68.5			
OPK23611-10A08	16	- 10	5/8"	1/2"		9.3	86.5	31.8	52.0			
OPK23611-10A12	16	- 10	5/8"	3/4"		15.0	104.5	41.5	70.0			
OPK23611-12A12	19	- 12	3/4"	3/4"		15.0	105.5	41.5	69.0			
OPK23611-12A16	19	- 12	3/4"	1"		20.0	117.5	47.7	81.0			
OPK23611-16A16	25	- 16	1"	1"		19.8	130.5	47.7	82.5			
OPK23611-16A20	25	- 16	1"	1.1/4"		26.0	138.0	54.2	90.0			
OPK23611-20A20	31	- 20	1.1/4"	1.1/4"		26.0	137.0	54.2	84.5			
OPK23611-20A24	31	- 20	1.1/4"	1.1/2"		32.0	143.0	63.7	90.5			
OPK23611-24A24	38	- 24	1.1/2"	1.1/2"		32.0	154.5	63.6	92.5			
OPK23611-32A32	51	- 32	2"	2"		42.0	175.0	79.5	109.0			

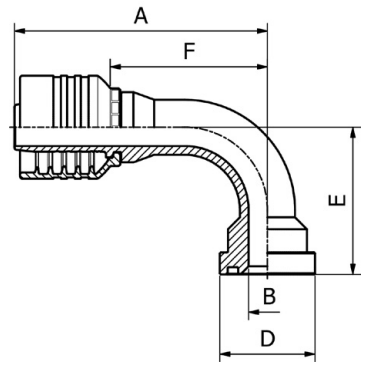


SAE STANDARD CONNECTIONS

OPK23641

45° ISO / SAE
CODE 62 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE		Flange		DIMENSIONS mm							
	DN	Dash	inch	inch		B	A	D	E	F		
OPK23641-08A08	12	- 8	1/2"	1/2"		9.3	93.5	31.8	22.0	62.0		
OPK23641-08A12	12	- 8	1/2"	3/4"		15.0	99.0	41.5	27.5	68.0		
OPK23641-10A12	16	- 10	5/8"	3/4"		15.0	102.0	41.5	31.0	67.5		
OPK23641-12A12	19	- 12	3/4"	3/4"		15.0	109.0	41.5	28.0	72.5		
OPK23641-12A16	19	- 12	3/4"	1"		20.0	114.0	47.7	32.5	77.0		
OPK23641-16A12	25	- 16	1"	3/4"		15.0	128.0	41.5	30.0	80.0		
OPK23641-16A16	25	- 16	1"	1"		19.8	132.0	47.7	32.5	83.5		
OPK23641-16A20	25	- 16	1"	1.1/4"		26.0	136.5	54.2	37.5	88.5		
OPK23641-20A20	31	- 20	1.1/4"	1.1/4"		26.0	147.5	54.2	37.5	95.0		
OPK23641-20A24	31	- 20	1.1/4"	1.1/2"		32.0	155.0	63.7	45.0	102.5		
OPK23641-24A24	38	- 24	1.1/2"	1.1/2"		32.0	180.0	63.7	44.0	118.0		
OPK23641-32A32	51	- 32	2"	2"		42.0	217.5	79.6	60.5	151.5		

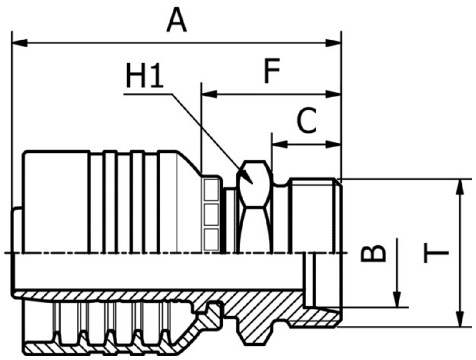


SAE STANDARD CONNECTIONS

OPK23691

90° ISO / SAE
CODE 62 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	F		
OPK23691-08A08	12	- 8	1/2"	1/2"		9.3	85.5	31.8	45.0	54.5		
OPK23691-08A12	12	- 8	1/2"	3/4"		15.0	85.5	41.5	53.0	54.5		
OPK23691-10A12	16	- 10	5/8"	3/4"		15.0	87.5	41.5	60.5	53.5		
OPK23691-10A16	16	- 10	5/8"	1"		19.8	90.0	47.7	64.0	56.0		
OPK23691-12A12	19	- 12	3/4"	3/4"		15.0	100.5	41.5	59.0	64.0		
OPK23691-12A16	19	- 12	3/4"	1"		20.0	101.0	47.7	65.0	64.5		
OPK23691-16A16	25	- 16	1"	1"		19.8	121.5	47.7	68.0	73.5		
OPK23691-16A20	25	- 16	1"	1.1/4"		26.0	121.5	54.2	75.0	73.5		
OPK23691-20A20	31	- 20	1.1/4"	1.1/4"		26.0	138.0	54.2	81.0	85.5		
OPK23691-20A24	31	- 20	1.1/4"	1.1/2"		32.0	138.0	63.7	91.5	85.5		
OPK23691-24A24	38	- 24	1.1/2"	1.1/2"		32.0	168.0	63.7	94.5	106.0		
OPK23691-32A32	51	- 32	2"	2"		42.0	204.0	79.6	132.0	138.0		

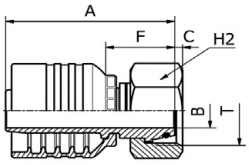


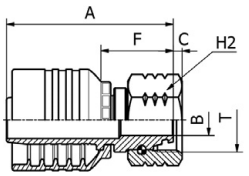
DIN STANDARD CONNECTIONS

OPK11110

METRIC
MALE 24° CONE SEAT LIGHT DUTY
DIN 20066 / ISO 12151-2

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	F	H1		
OPK11110-06A16	10	- 6	3/8"	M 16X1,5	10.0	7.0	53.5	11.0	24.0	17.0		
OPK11110-06A18	10	- 6	3/8"	M 18X1,5	12.0	9.0	54.0	11.0	24.5	19.0		
OPK11110-06A22	10	- 6	3/8"	M 22X1,5	15.0	10.0	55.0	12.0	25.5	22.0		
OPK11110-08A22	12	- 8	1/2"	M 22X1,5	15.0	10.0	56.5	12.0	25.5	22.0		
OPK11110-08A26	12	- 8	1/2"	M 26X1,5	18.0	12.5	57.5	12.0	26.5	27.0		
OPK11110-10A22	16	- 10	5/8"	M 22X1,5	15.0	10.0	60.0	12.0	25.5	22.0		
OPK11110-10A26	16	- 10	5/8"	M 26X1,5	18.0	12.5	61.0	12.0	26.5	27.0		
OPK11110-12A30	19	- 12	3/4"	M 30X2	22.0	15.0	66.5	14.0	30.0	30.0		
OPK11110-16A36	25	- 16	1"	M 36X2	28.0	19.8	80.5	14.0	32.5	36.0		
OPK11110-20A45	31	- 20	1.1/4"	M 45X2	35.0	26.0	93.0	16.0	40.5	46.0		
OPK11110-24A52	38	- 24	1.1/2"	M 52X2	42.0	32.0	105.0	16.0	43.0	55.0		





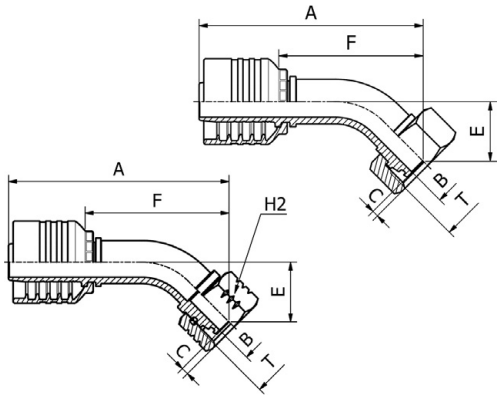
DIN STANDARD CONNECTIONS

OPK21512/OPK21513

METRIC
O-RING FEMALE 24° CONE LIGHT DUTY
DIN 20066 / ISO 12151-2

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	F	H2		
OPK21512-06A16	10	- 6	3/8"	M 16X1,5	10.0	6.0	52.5	3.0	23.0	19.0		
OPK21513-06A18	10	- 6	3/8"	M 18X1,5	12.0	7.0	52.0	2.0	22.5	22.0		
OPK21513-06A22	10	- 6	3/8"	M 22X1,5	15.0	9.3	54.5	1.5	25.0	27.0		
OPK21512-08A18	12	- 8	1/2"	M 18X1,5	12.0	7.0	60.0	2.9	29.0	22.0		
OPK21513-08A22	12	- 8	1/2"	M 22X1,5	15.0	9.3	56.5	1.5	25.5	27.0		
OPK21513-08A26	12	- 8	1/2"	M 26X1,5	18.0	12.5	57.0	2.0	26.0	32.0		
OPK21513-10A26	16	- 10	5/8"	M 26X1,5	18.0	12.5	60.5	2.0	26.0	32.0		
OPK21513-10A30	16	- 10	5/8"	M 30X2	22.0	15.0	68.5	3.0	34.0	36.0		
OPK21512-12A26	19	- 12	3/4"	M 26X1,5	18.0	12.5	67.5	2.3	31.0	32.0		
OPK21513-12A30	19	- 12	3/4"	M 30X2	22.0	15.0	64.5	3.0	28.0	36.0		
OPK21513-12A36	19	- 12	3/4"	M 36X2	28.0	20.0	65.0	3.7	28.5	41.0		
OPK21513-16A36	25	- 16	1"	M 36X2	28.0	19.8	77.5	3.7	29.5	41.0		
OPK21513-20A45	31	- 20	1.1/4"	M 45X2	35.0	26.0	85.5	4.0	33.0	50.0		
OPK21513-24A52	38	- 24	1.1/2"	M 52X2	42.0	32.0	95.0	4.5	33.0	60.0		

OPK21512: THRUST WIRE NUT / OPK21513: SLIP-ON NUT



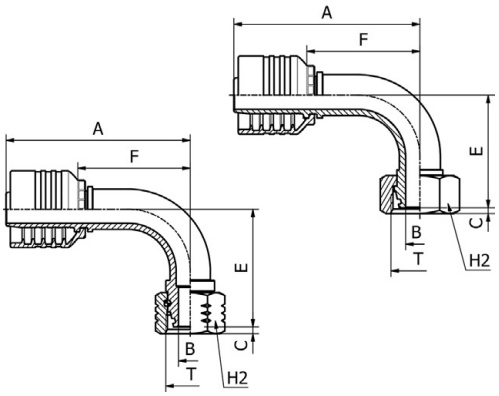
DIN STANDARD CONNECTIONS

OPK21542/OPK21543

45° METRIC
O-RING FEMALE SWEPT ELBOW 24° CONE
LIGHT DUTY
DIN 20066 / ISO 12151-2

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	E	F	H2	
OPK21542-06A16	10	- 6	3/8"	M 16X1,5	10.0	6.0	77.0	3.0	21.5	47.5	19.0	
OPK21543-06A18	10	- 6	3/8"	M 18X1,5	12.0	7.0	73.0	2.0	16.5	43.5	22.0	
OPK21543-06A22	10	- 6	3/8"	M 22X1,5	15.0	9.3	74.0	1.5	18.0	45.0	27.0	
OPK21543-08A22	12	- 8	1/2"	M 22X1,5	15.0	9.3	83.0	1.5	19.0	52.0	27.0	
OPK21543-10A26	16	- 10	5/8"	M 26X1,5	18.0	12.5	96.5	2.0	26.5	62.0	32.0	
OPK21543-12A30	19	- 12	3/4"	M 30X2	22.0	15.0	107.5	3.0	28.5	71.0	36.0	
OPK21543-16A36	25	- 16	1"	M 36X2	28.0	19.8	133.0	3.7	32.0	85.0	41.0	
OPK21543-20A45	31	- 20	1.1/4"	M 45X2	35.0	26.0	152.5	4.0	36.0	100.0	50.0	
OPK21543-24A52	38	- 24	1.1/2"	M 52X2	42.0	32.0	179.0	4.5	44.5	117.0	60.0	

OPK21542: THRUST WIRE NUT / OPK21543: SLIP-ON NUT



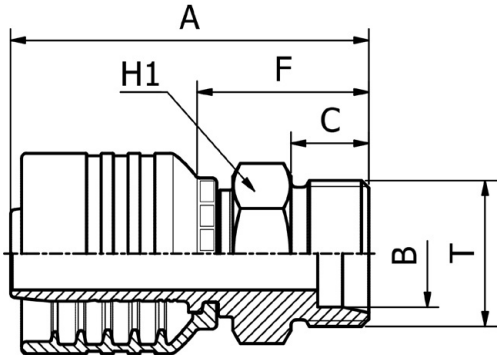
DIN STANDARD CONNECTIONS

OPK21592/OPK21593

90° METRIC
O-RING FEMALE SWEPT ELBOW 24° CONE
LIGHT DUTY
DIN 20066 / ISO 12151-2

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	E	F	H2	
OPK21592-06A16	10	- 6	3/8"	M 16X1,5	10.0	6.0	65.0	3.0	40.0	35.5	19.0	
OPK21593-06A18	10	- 6	3/8"	M 18X1,5	12.0	7.0	66.0	2.0	33.5	36.5	22.0	
OPK21593-06A22	10	- 6	3/8"	M 22X1,5	15.0	9.3	66.0	1.5	35.0	36.5	27.0	
OPK21592-08A18	12	- 8	1/2"	M 18X1,5	12.0	7.0	75.0	2.9	48.0	44.0	22.0	
OPK21593-08A22	12	- 8	1/2"	M 22X1,5	15.0	9.3	76.0	1.5	39.5	45.0	27.0	
OPK21593-08A26	12	- 8	1/2"	M 26X1,5	18.0	12.5	76.0	2.0	40.0	45.0	32.0	
OPK21593-10A26	16	- 10	5/8"	M 26X1,5	18.0	12.5	86.0	2.0	53.0	51.5	32.0	
OPK21593-10A30	16	- 10	5/8"	M 30X2	22.0	15.0	86.0	3.0	54.0	51.5	36.0	
OPK21593-12A30	19	- 12	3/4"	M 30X2	22.0	15.0	97.5	3.0	59.5	61.5	36.0	
OPK21593-16A36	25	- 16	1"	M 36X2	28.0	19.8	125.0	3.7	69.5	76.5	41.0	
OPK21593-20A45	31	- 20	1.1/4"	M 45X2	35.0	26.0	146.0	4.0	81.0	93.5	50.0	
OPK21593-24A52	38	- 24	1.1/2"	M 52X2	42.0	32.0	169.5	4.5	98.0	107.5	60.0	

OPK21592: THRUST WIRE NUT / OPK21593: SLIP-ON NUT

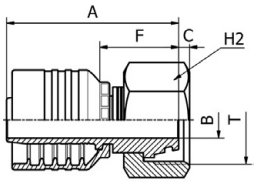


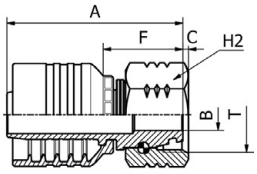
DIN STANDARD CONNECTIONS

OPK11210

METRIC
MALE 24° CONE SEAT HEAVY DUTY
DIN 20066 / ISO 12151-2

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	F	H1		
OPK11210-06A18	10	- 6	3/8"	M 18X1,5	10.0	7.0	56.5	12.0	27.0	19.0		
OPK11210-06A20	10	- 6	3/8"	M 20X1,5	12.0	7.0	58.5	12.0	29.0	22.0		
OPK11210-06A22	10	- 6	3/8"	M 22X1,5	14.0	8.0	60.5	14.0	31.0	22.0		
OPK11210-08A24	12	- 8	1/2"	M 24X1,5	16.0	9.3	62.5	14.0	31.5	24.0		
OPK11210-10A30	16	- 10	5/8"	M 30X2	20.0	15.0	70.0	16.0	35.5	30.0		
OPK11210-12A30	19	- 12	3/4"	M 30X2	20.0	15.0	73.5	16.0	37.0	30.0		
OPK11210-12A36	19	- 12	3/4"	M 36X2	25.0	19.8	77.5	18.0	41.0	36.0		
OPK11210-16A36	25	- 16	1"	M 36X2	25.0	19.8	90.5	18.0	42.5	36.0		
OPK11210-16A42	25	- 16	1"	M 42X2	30.0	25.0	92.5	20.0	44.5	46.0		
OPK11210-20A52	31	- 20	1.1/4"	M 52X2	38.0	30.0	103.5	22.0	51.0	55.0		





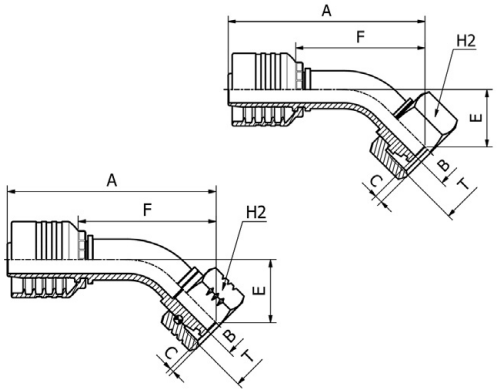
DIN STANDARD CONNECTIONS

OPK21612/OPK21613

METRIC
O-RING FEMALE 24° CONE HEAVY DUTY
DIN 20066 / ISO 12151-2

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	F	H2		
OPK21613-06A20	10	- 6	3/8"	M 20X1,5	12.0	7.0	54.5	2.0	25.5	24.0		
OPK21613-06A22	10	- 6	3/8"	M 22X1,5	14.0	7.0	62.0	3.0	32.5	27.0		
OPK21613-08A24	12	- 8	1/2"	M 24X1,5	16.0	9.3	58.0	4.0	26.5	30.0		
OPK21613-10A30	16	- 10	5/8"	M 30X2	20.0	12.5	65.0	3.5	30.5	36.0		
OPK21612-12A30	19	- 12	3/4"	M 30X2	20.0	12.5	70.0	2.2	33.5	36.0		
OPK21613-12A36	19	- 12	3/4"	M 36X2	25.0	15.0	70.5	4.5	34.0	41.0		
OPK21612-16A36	25	- 16	1"	M 36X2	25.0	15.0	83.5	1.7	35.5	41.0		
OPK21613-16A42	25	- 16	1"	M 42X2	30.0	19.8	83.5	6.3	35.5	50.0		
OPK21613-20A52	31	- 20	1.1/4"	M 52X2	38.0	26.0	90.0	8.0	37.5	60.0		
OPK21613-24A52	38	- 24	1.1/2"	M 52X2	38.0	26.0	111.5	8.0	49.5	60.0		

OPK21612: THRUST WIRE NUT / OPK21613: SLIP-ON NUT



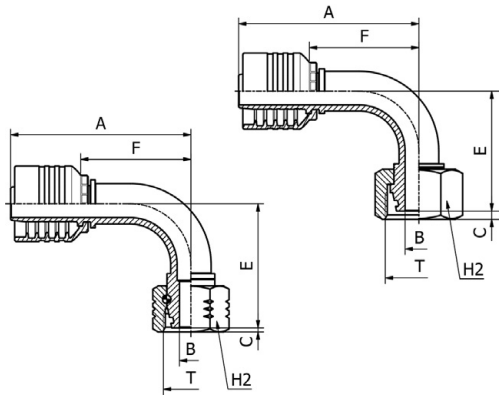
DIN STANDARD CONNECTIONS

OPK21642/OPK21643

45° METRIC
O-RING FEMALE SWEPT ELBOW 24° CONE
HEAVY DUTY
DIN 20066 / ISO 12151-2

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	E	F	H2	
OPK21643-06A20	10	- 6	3/8"	M 20X1,5	12.0	7.0	73.5	2.0	17.0	44.0	24.0	
OPK21643-06A22	10	- 6	3/8"	M 22X1,5	14.0	7.0	75.0	3.0	18.5	45.5	27.0	
OPK21643-08A24	12	- 8	1/2"	M 24X1,5	16.0	9.3	83.5	4.0	20.0	52.5	30.0	
OPK21643-10A30	16	- 10	5/8"	M 30X2	20.0	12.5	99.5	3.5	29.5	65.5	36.0	
OPK21642-12A30	19	- 12	3/4"	M 30X2	20.0	12.5	113.0	2.2	34.0	76.5	36.0	
OPK21643-12A36	19	- 12	3/4"	M 36X2	25.0	15.0	111.5	4.5	32.5	75.0	41.0	
OPK21643-16A42	25	- 16	1"	M 42X2	30.0	19.8	138.0	6.3	35.5	90.0	50.0	
OPK21643-20A52	31	- 20	1.1/4"	M 52X2	38.0	26.0	155.5	8.0	39.5	103.0	60.0	

OPK21642: THRUST WIRE NUT / OPK21643: SLIP-ON NUT



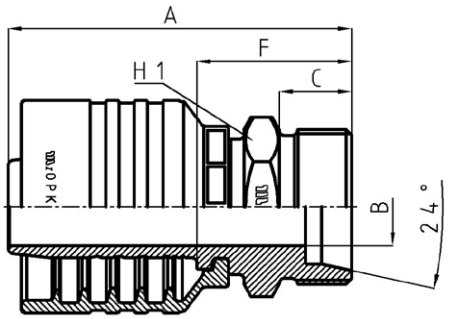
DIN STANDARD CONNECTIONS

OPK21692/OPK21693

90° METRIC
O-RING FEMALE SWEPT ELBOW 24° CONE
HEAVY DUTY
DIN 20066 / ISO 12151-2

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	E	F	H2	
OPK21693-06A20	10	- 6	3/8"	M 20X1,5	12.0	7.0	66.0	2.0	35.0	36.5	24.0	
OPK21693-06A22	10	- 6	3/8"	M 22X1,5	14.0	7.0	66.0	3.0	37.0	36.5	27.0	
OPK21693-06A24	10	- 6	3/8"	M 24X1,5	16.0	9.3	66.0	4.0	36.0	36.5	30.0	
OPK21693-08A24	12	- 8	1/2"	M 24X1,5	16.0	9.3	76.0	4.0	40.5	45.0	30.0	
OPK21693-10A30	16	- 10	5/8"	M 30X2	20.0	12.5	86.0	3.5	57.5	51.5	36.0	
OPK21692-12A30	19	- 12	3/4"	M 30X2	20.0	12.5	98.0	2.2	67.5	61.5	36.0	
OPK21693-12A36	19	- 12	3/4"	M 36X2	25.0	15.0	97.5	4.5	64.5	61.5	41.0	
OPK21692-16A36	25	- 16	1"	M 36X2	25.0	15.0	127.5	1.7	86.0	79.5	41.0	
OPK21693-16A42	25	- 16	1"	M 42X2	30.0	19.8	127.5	6.3	74.5	79.0	50.0	
OPK21693-20A52	31	- 20	1.1/4"	M 52X2	38.0	26.0	146.0	8.0	85.5	93.5	60.0	

OPK21692: THRUST WIRE NUT / OPK21693: SLIP-ON NUT

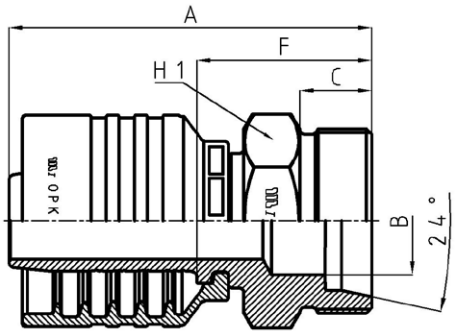


NF STANDARD CONNECTIONS

OPK11710

FRENCH METRIC
MALE 24° CONE SEAT
MILLIMETRIC TYPE

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	F	H1		
OPK11710-12A30	19	- 12	3/4"	M 30X1,5	22.0	15.0	66.5	14.0	30.0	30.0		

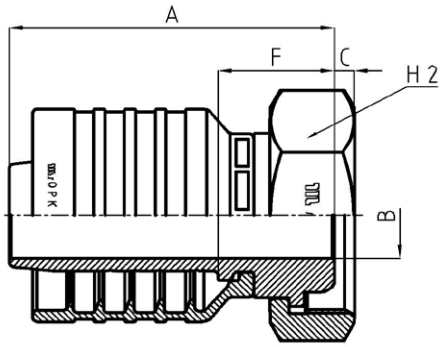


NF STANDARD CONNECTIONS

OPK11810

FRENCH METRIC
MALE 24° CONE SEAT
GAZ TYPE

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	F	H1		
OPK11810-12A36	19	- 12	3/4"	M 36X1,5	26.8	21.0	70.5	14.0	34.0	36.0		

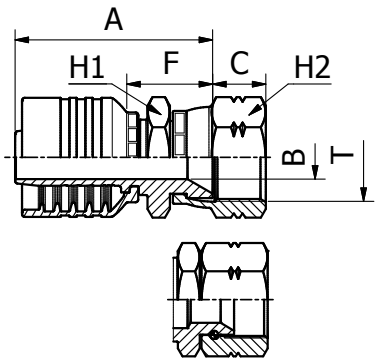


NF STANDARD CONNECTIONS

OPK21813

FRENCH METRIC
FEMALE
GAZ TYPE

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	F	H2		
OPK21813-16A45	25	- 16	1"	M 45X1,5	33.5	19.8	75.0	4.5	27.0	50.0		



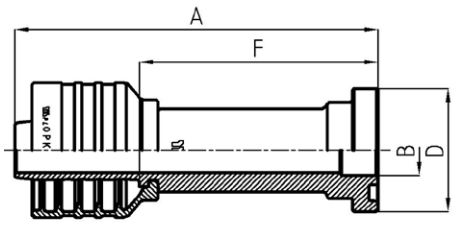
JIS STANDARD CONNECTIONS

OPK24011/OPK24012

JIS METRIC
FEMALE (KOMATSU)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	F	H1	H2	
OPK24011-06A18	10	- 6	3/8"	M 18X1,5		7.0	53.0	11.5	23.5	24.0	24.0	
OPK24011-08A22	12	- 8	1/2"	M 22X1,5		9.3	56.0	13.0	25.0	27.0	27.0	
OPK24011-10A24	16	- 10	5/8"	M 24X1,5		12.5	61.0	15.1	26.5	32.0	32.0	
OPK24011-12A30	19	- 12	3/4"	M 30X1,5		15.0	68.0	18.3	31.5	36.0	36.0	
OPK24011-16A33	25	- 16	1"	M 33X1,5		19.8	81.5	21.3	33.5	41.0	41.0	
OPK24012-24A42	38	- 24	1.1/2"	M 42X1,5		26.0	106.0	18.8	44.0	55.0	55.0	

OPK24011: CRIMPED BACK-NUT / OPK24012: THRUST WIRE NUT



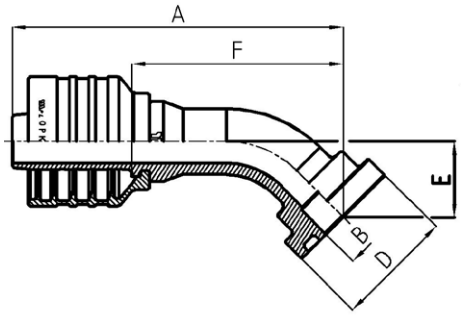
ORIGINAL EQUIPMENT CONNECTIONS

OPK24111

STRAIGHT KOMATSU FLANGE

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	F			
OPK24111-10A10	16	- 10	5/8"	5/8"		14.0	100.0	34.0	65.5			

ORIGINAL EQUIPMENT CONNECTIONS

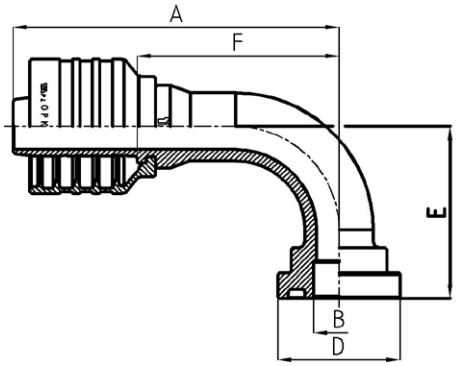


OPK24141

45° KOMATSU FLANGE

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	F		
OPK24141-10A10	16	- 10	5/8"	5/8"		14.0	95.0	34.0	22.0	61.0		

ORIGINAL EQUIPMENT CONNECTIONS

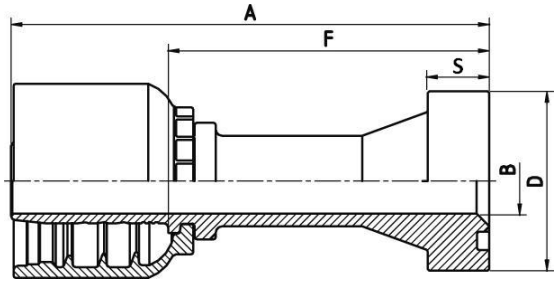


OPK24191

90° KOMATSU FLANGE

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	F		
OPK24191-10A10	16	- 10	5/8"	5/8"		14.0	90.0	34.0	47.5	56.0		

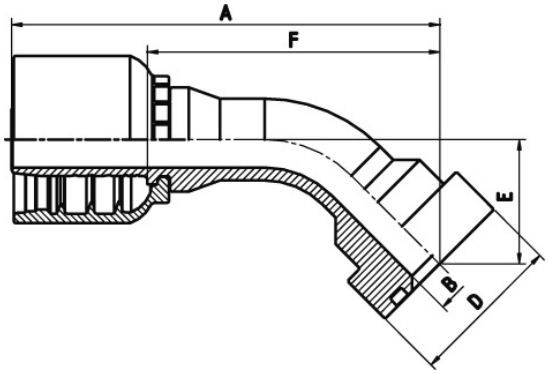
ORIGINAL EQUIPMENT CONNECTIONS



OPK23911

STRAIGHT SUPERCAT FLANGE

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	F	S		
OPK23911-12A12	19	- 12	3/4"	3/4"		15.0	111.0	41.5	74.5	14.3		
OPK23911-16A16	25	- 16	1"	1"		19.8	135.0	47.7	87.0	14.3		
OPK23911-16A20	25	- 16	1"	1.1/4"		26.0	140.5	54.0	92.5	14.3		
OPK23911-20A20	31	- 20	1.1/4"	1.1/4"		26.0	138.5	54.0	86.0	14.3		
OPK23911-24A24	38	- 24	1.1/2"	1.1/2"		32.0	156.0	63.6	94.0	14.3		

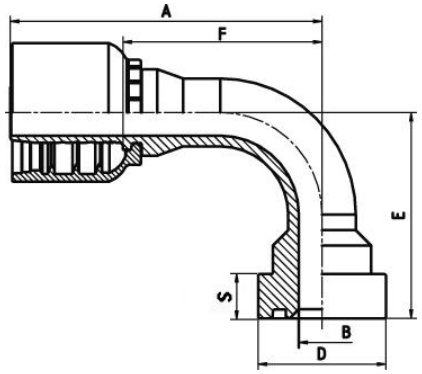


ORIGINAL EQUIPMENT CONNECTIONS

OPK23941

45° SUPERCAT FLANGE

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	F	S	
OPK23941-12A12	19	- 12	3/4"	3/4"		15.0	114.0	41.5	32.0	77.0	14.3	
OPK23941-16A16	25	- 16	1"	1"		19.8	138.0	47.7	36.5	89.5	14.3	
OPK23941-16A20	25	- 16	1"	1.1/4"		26.0	140.5	54.0	40.5	92.5	14.3	
OPK23941-20A20	31	- 20	1.1/4"	1.1/4"		26.0	151.5	54.0	41.5	99.0	14.3	

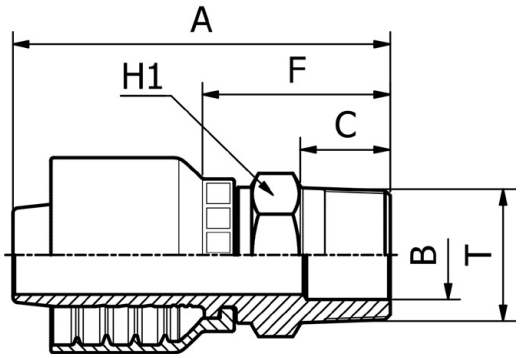


ORIGINAL EQUIPMENT CONNECTIONS

OPK23991

90° SUPERCAT FLANGE

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	F	S	
OPK23991-12A12	19	- 12	3/4"	3/4"		15.0	101.0	41.5	64.5	64.5	14.3	
OPK23991-16A16	25	- 16	1"	1"		19.8	125.5	47.7	76.5	77.5	14.3	
OPK23991-16A20	25	- 16	1"	1.1/4"		26.0	123.5	54.0	80.5	75.5	14.3	
OPK23991-20A20	31	- 20	1.1/4"	1.1/4"		26.0	138.0	54.0	87.0	85.5	14.3	

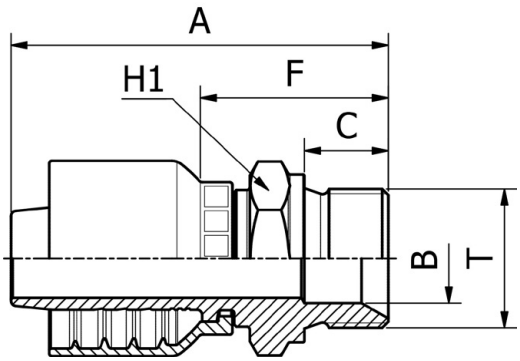


BS STANDARD CONNECTIONS

OPF10710

BSP
MALE TAPERED

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	F	H1		
OPF10710-08A08	12	- 8	1/2"	1/2" - 14		10.0	62.0	15.0	31.0	22.0		
OPF10710-10A12	16	- 10	5/8"	3/4" - 14		17.0	68.5	17.0	34.0	27.0		

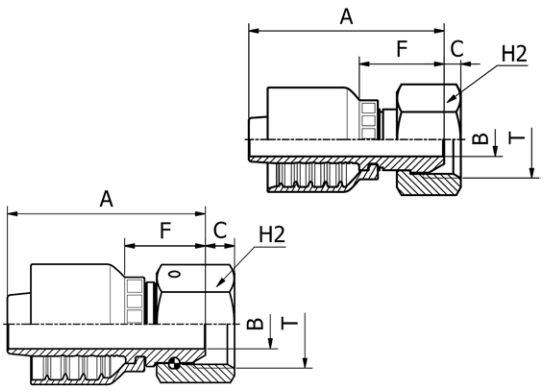


BS STANDARD CONNECTIONS

OPF10510

BSP
MALE PARALLEL 60° CONE SEAT
BS5200 / ISO 8434-6

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	F	H1		
OPF10510-03A02	5	- 3	3/16"	1/8" - 28		3.5	44.0	10.0	22.5	14.0		
OPF10510-04A02	6	- 4	1/4"	1/8" - 28		3.5	50.0	10.0	22.5	14.0		
OPF10510-04A04	6	- 4	1/4"	1/4" - 19		5.0	53.0	11.0	25.5	19.0		
OPF10510-04A06	6	- 4	1/4"	3/8" - 19		8.0	54.5	12.0	27.0	22.0		
OPF10510-05A04	8	- 5	5/16"	1/4" - 19		5.0	54.0	11.0	26.0	19.0		
OPF10510-05A06	8	- 5	5/16"	3/8" - 19		8.0	55.5	12.0	27.5	22.0		
OPF10510-06A04	10	- 6	3/8"	1/4" - 19		5.0	55.5	11.0	26.0	19.0		
OPF10510-06A06	10	- 6	3/8"	3/8" - 19		8.0	57.5	12.0	28.0	22.0		
OPF10510-06A08	10	- 6	3/8"	1/2" - 14		11.0	60.0	14.0	30.5	27.0		
OPF10510-08A06	12	- 8	1/2"	3/8" - 19		8.0	59.0	12.0	28.0	22.0		
OPF10510-08A08	12	- 8	1/2"	1/2" - 14		11.0	62.0	14.0	31.0	27.0		
OPF10510-08A10	12	- 8	1/2"	5/8" - 14		14.5	64.0	16.0	33.0	30.0		
OPF10510-08A12	12	- 8	1/2"	3/4" - 14		17.0	65.0	16.0	34.0	32.0		
OPF10510-10A10	16	- 10	5/8"	5/8" - 14		14.5	67.5	16.0	33.0	30.0		
OPF10510-10A12	16	- 10	5/8"	3/4" - 14		17.0	68.5	16.0	34.0	32.0		
OPF10510-12A12	19	- 12	3/4"	3/4" - 14		17.0	72.0	16.0	35.5	32.0		
OPF10510-12A16	19	- 12	3/4"	1" - 11		22.5	76.0	19.0	39.5	41.0		
OPF10510-16A16	25	- 16	1"	1" - 11		22.5	89.0	19.0	41.0	41.0		
OPF10510-16A20	25	- 16	1"	1.1/4" - 11		28.5	93.0	20.0	45.0	50.0		



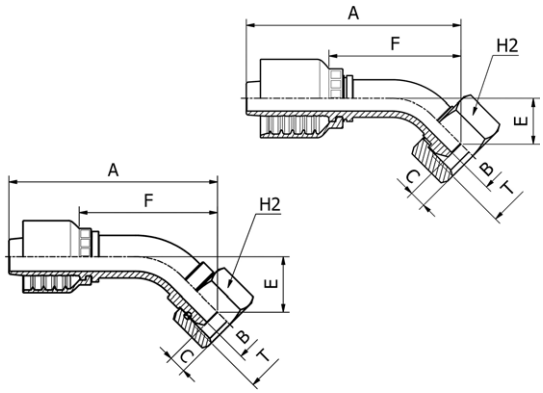
BS STANDARD CONNECTIONS

OPF20512/OPF20513

BSP
FEMALE 60° CONE
BS5200 / ISO 12151-6

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	F	H2		
OPF20512-03A02	5	- 3	3/16"	1/8" - 28		3.0	37.0	4.4	16.0	14.0		
OPF20513-03A04	5	- 3	3/16"	1/4" - 19		4.0	38.0	5.4	16.5	19.0		
OPF20512-04A02	6	- 4	1/4"	1/8" - 28		3.1	44.0	4.4	16.5	14.0		
OPF20513-04A04	6	- 4	1/4"	1/4" - 19		4.0	44.5	5.4	17.0	19.0		
OPF20513-04A06	6	- 4	1/4"	3/8" - 19		7.0	45.5	6.0	19.0	22.0		
OPF20512-05A04	8	- 5	5/16"	1/4" - 19		4.1	45.5	4.2	17.5	19.0		
OPF20513-05A06	8	- 5	5/16"	3/8" - 19		7.0	47.0	6.0	19.0	22.0		
OPF20512-06A04	10	- 6	3/8"	1/4" - 19		4.1	47.5	4.2	18.0	19.0		
OPF20513-06A06	10	- 6	3/8"	3/8" - 19		7.0	49.0	6.0	19.5	22.0		
OPF20513-06A08	10	- 6	3/8"	1/2" - 14		9.3	49.5	6.3	20.0	27.0		
OPF20512-08A06	12	- 8	1/2"	3/8" - 19		7.1	52.0	6.0	21.0	22.0		
OPF20513-08A08	12	- 8	1/2"	1/2" - 14		9.3	51.5	6.3	20.5	27.0		
OPF20512-08A10	12	- 8	1/2"	5/8" - 14		12.1	53.0	10.2	22.0	28.0		
OPF20512-08A12	12	- 8	1/2"	3/4" - 14		15.0	56.0	9.0	24.5	32.0		
OPF20512-10A10	16	- 10	5/8"	5/8" - 14		12.5	56.0	10.2	21.5	28.0		
OPF20512-10A12	16	- 10	5/8"	3/4" - 14		15.0	57.5	9.0	23.0	32.0		
OPF20512-12A12	19	- 12	3/4"	3/4" - 14		15.0	61.0	9.0	24.5	32.0		
OPF20512-12A16	19	- 12	3/4"	1" - 11		19.8	62.5	10.5	26.0	38.0		
OPF20512-16A16	25	- 16	1"	1" - 11		19.8	75.5	10.5	27.5	38.0		

OPF20512: THRUST WIRE NUT / OPF20513: SLIP-ON NUT



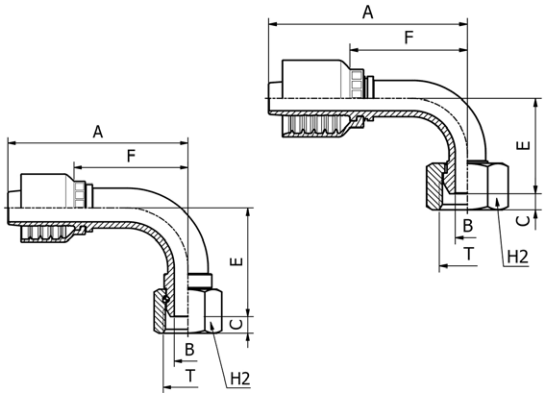
BS STANDARD CONNECTIONS

OPF20542/OPF20543

45° BSP
FEMALE ELBOW 60° CONE
BS5200 / ISO 12151-6

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	F	H2	
OPF20543-04A04	6	- 4	1/4"	1/4" - 19		4.0	63.5	5.4	15.0	36.0	19.0	
OPF20543-04A06	6	- 4	1/4"	3/8" - 19		7.0	65.0	6.0	16.0	37.5	22.0	
OPF20543-05A06	8	- 5	5/16"	3/8" - 19		7.0	66.0	6.0	13.5	38.0	22.0	
OPF20543-06A06	10	- 6	3/8"	3/8" - 19		7.0	71.5	6.0	15.5	42.0	22.0	
OPF20543-06A08	10	- 6	3/8"	1/2" - 14		9.3	72.0	6.3	16.0	42.5	27.0	
OPF20543-08A08	12	- 8	1/2"	1/2" - 14		9.3	81.0	6.3	17.0	49.5	27.0	
OPF20542-08A10	12	- 8	1/2"	5/8" - 14		12.1	85.5	10.2	22.5	54.5	28.0	
OPF20542-10A10	16	- 10	5/8"	5/8" - 14		12.5	97.5	10.2	26.0	63.0	28.0	
OPF20542-10A12	16	- 10	5/8"	3/4" - 14		15.0	98.0	9.0	27.0	64.0	32.0	
OPF20542-12A12	19	- 12	3/4"	3/4" - 14		15.0	107.0	9.0	28.5	70.5	32.0	
OPF20542-12A16	19	- 12	3/4"	1" - 11		19.8	109.0	10.5	30.0	72.5	38.0	
OPF20542-16A16	25	- 16	1"	1" - 11		19.8	139.5	10.5	36.5	91.0	38.0	

OPF20542: THRUST WIRE NUT / OPF20543: SLIP-ON NUT



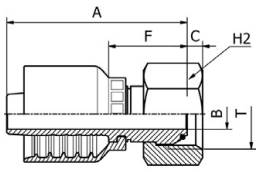
BS STANDARD CONNECTIONS

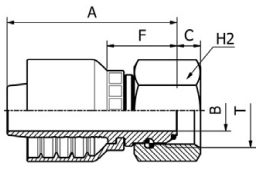
OPF20592/OPF20593

90° BSP
FEMALE ELBOW 60° CONE
BS5200 / ISO 12151-6

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	F	H2	
OPF20592-03A02	5	- 3	3/16"	1/8" - 28		3.0	43.0	4.4	26.0	21.5	14.0	
OPF20592-04A02	6	- 4	1/4"	1/8" - 28		3.1	56.0	4.4	27.0	28.5	14.0	
OPF20593-04A04	6	- 4	1/4"	1/4" - 19		4.0	57.0	5.4	29.0	29.5	19.0	
OPF20593-04A06	6	- 4	1/4"	3/8" - 19		7.0	57.0	6.0	31.0	29.5	22.0	
OPF20593-05A06	8	- 5	5/16"	3/8" - 19		7.0	60.0	6.0	27.5	32.0	22.0	
OPF20592-05A04	8	- 5	5/16"	1/4" - 19		4.0	54.5	4.1	29.5	26.5	19.0	
OPF20593-06A08	10	- 6	3/8"	1/2" - 14		9.3	66.0	6.3	32.0	36.5	27.0	
OPF20593-06A06	10	- 6	3/8"	3/8" - 19		7.0	66.0	6.0	31.5	36.5	22.0	
OPF20592-08A06	12	- 8	1/2"	3/8" - 19		7.1	76.0	6.0	41.0	45.0	22.0	
OPF20593-08A08	12	- 8	1/2"	1/2" - 14		9.3	76.0	6.3	36.5	45.0	27.0	
OPF20592-08A10	12	- 8	1/2"	5/8" - 14		12.1	75.5	10.2	44.0	44.0	28.0	
OPF20592-08A12	12	- 8	1/2"	3/4" - 14		15.0	75.5	9.0	45.5	44.0	32.0	
OPF20592-10A10	16	- 10	5/8"	5/8" - 14		12.5	88.0	10.2	53.5	53.5	28.0	
OPF20592-10A12	16	- 10	5/8"	3/4" - 14		15.0	88.0	9.0	55.0	53.5	32.0	
OPF20592-12A12	19	- 12	3/4"	3/4" - 14		15.0	98.0	9.0	59.5	61.5	32.0	
OPF20592-12A16	19	- 12	3/4"	1" - 11		19.8	98.0	10.5	62.0	61.5	38.0	
OPF20592-16A16	25	- 16	1"	1" - 11		19.8	127.5	10.5	76.0	79.5	38.0	

OPF20592: THRUST WIRE NUT / OPF20593: SLIP-ON NUT





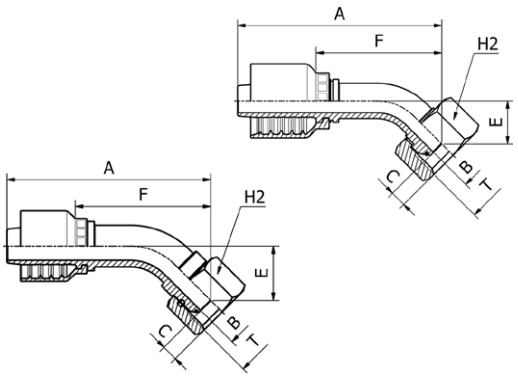
BS STANDARD CONNECTIONS

OPF20812/OPF20813

BSP
O-RING FEMALE 60° CONE
BS5200 / ISO 12151-6

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	F	H2		
OPF20813-04A04	6	- 4	1/4"	1/4" - 19		4.0	44.5	5.4	17.0	19.0		
OPF20812-06A04	10	- 6	3/8"	1/4" - 19		4.1	47.5	4.1	18.0	19.0		
OPF20813-06A06	10	- 6	3/8"	3/8" - 19		7.0	49.0	6.0	19.5	22.0		
OPF20813-08A08	12	- 8	1/2"	1/2" - 14		9.3	51.5	6.3	20.5	27.0		
OPF20812-10A10	16	- 10	5/8"	5/8" - 14		12.5	56.5	9.7	22.0	28.0		
OPF20812-12A12	19	- 12	3/4"	3/4" - 14		15.0	61.5	8.5	25.0	32.0		
OPF20812-16A16	25	- 16	1"	1" - 11		19.8	75.5	10.6	27.5	38.0		
OPF20812-16A20	25	- 16	1"	1.1/4" - 11		26.1	79.0	10.5	31.0	50.0		

OPF20812: THRUST WIRE NUT / OPF20813: SLIP-ON NUT



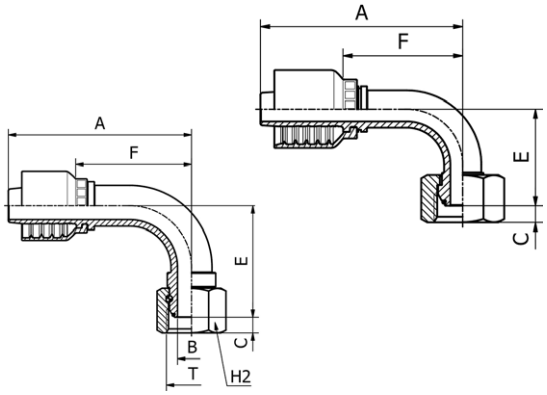
BS STANDARD CONNECTIONS

OPF20842/OPF20843

45° BSP
O-RING FEMALE ELBOW 60° CONE
BS5200 / ISO 12151-6

PART. REF.	HOSE BORE		Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	F	H2	
OPF20843-04A04	6	- 4	1/4"	1/4" - 19		4.0	63.5	5.4	14.5	36.0	19.0	
OPF20843-06A06	10	- 6	3/8"	3/8" - 19		7.0	71.5	6.0	15.5	42.0	22.0	
OPF20843-08A08	12	- 8	1/2"	1/2" - 14		9.3	81.0	6.3	17.0	49.5	27.0	
OPF20842-10A10	16	- 10	5/8"	5/8" - 14		12.5	98.0	9.7	27.5	63.5	28.0	
OPF20842-12A12	19	- 12	3/4"	3/4" - 14		15.0	107.5	8.5	29.0	71.0	32.0	
OPF20842-16A16	25	- 16	1"	1" - 11		19.8	138.5	10.6	35.5	90.5	38.0	

OPF20842: THRUST WIRE NUT / OPF20843: SLIP-ON NUT



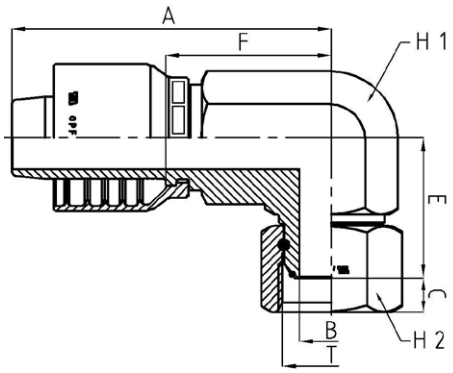
BS STANDARD CONNECTIONS

OPF20892/OPF20893

90° BSP
O-RING FEMALE SWEPT ELBOW 60° CONE
BS5200 / ISO 12151-6

PART. REF.	HOSE BORE		Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	F	H2	
OPF20893-04A04	6	- 4	1/4"	1/4" - 19		4.0	57.0	5.4	29.0	29.5	19.0	
OPF20892-06A04	10	- 6	3/8"	1/4" - 19		4.1	65.0	4.1	33.0	35.5	19.0	
OPF20893-06A06	10	- 6	3/8"	3/8" - 19		7.0	66.0	6.0	31.5	36.5	22.0	
OPF20893-08A08	12	- 8	1/2"	1/2" - 14		9.3	76.0	6.3	36.5	45.0	27.0	
OPF20892-10A10	16	- 10	5/8"	5/8" - 14		12.5	87.5	9.7	55.0	53.0	28.0	
OPF20892-12A12	19	- 12	3/4"	3/4" - 14		15.0	98.0	8.5	60.0	61.5	32.0	
OPF20892-16A16	25	- 16	1"	1" - 11		19.8	127.5	10.6	76.0	79.5	38.0	
OPF20892-16A20	25	- 16	1"	1.1/4" - 11		26.1	127.5	10.5	78.5	79.5	50.0	

OPF20892: THRUST WIRE NUT / OPF20893: SLIP-ON NUT

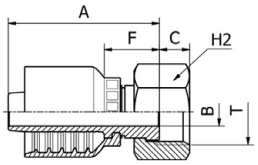


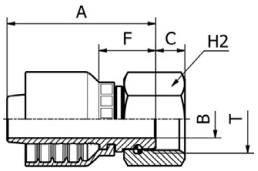
BS STANDARD CONNECTIONS

OPF20882F

90° BSP
O-RING FEMALE COMPACT ELBOW 60° CONE
BS5200 / ISO 12151-6
(THRUST-WIRE NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	F	H1	H2
OPF20882-04A04F	6	- 4	1/4"	1/4" - 19		4.0	47.5	4.1	22.0	20.0	14.0	19.0
OPF20882-06A06F	10	- 6	3/8"	3/8" - 19		7.0	52.5	6.0	27.5	23.0	19.0	22.0
OPF20882-08A08F	12	- 8	1/2"	1/2" - 14		9.3	56.0	6.5	31.0	25.0	22.0	27.0
OPF20882-10A10F	16	- 10	5/8"	5/8" - 14		12.5	59.0	9.7	32.5	24.5	24.0	28.0
OPF20882-12A12F	19	- 12	3/4"	3/4" - 14		15.0	74.0	8.5	36.0	37.5	27.0	32.0
OPF20882-16A16F	25	- 16	1"	1" - 11		20.0	100.0	10.6	44.0	52.0	36.0	38.0



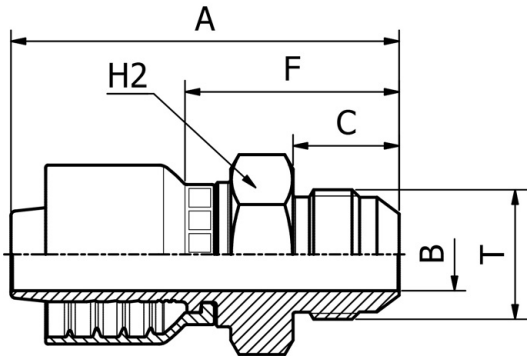


BS STANDARD CONNECTIONS

OPF20612/OPF20613

BSP
FEMALE FLAT SEAT
(SLIP-ON NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	F	H2		
OPF20613-06A06	10	- 6	3/8"	3/8" - 19		7.0	46.0	9.0	16.5	22.0		
OPF20613-06A08	10	- 6	3/8"	1/2" - 14		9.3	47.0	9.8	17.5	27.0		
OPF20613-08A08	12	- 8	1/2"	1/2" - 14		9.3	49.0	9.8	18.0	27.0		
OPF20612-08A12	12	- 8	1/2"	3/4" - 14		15.0	52.0	11.5	21.0	32.0		

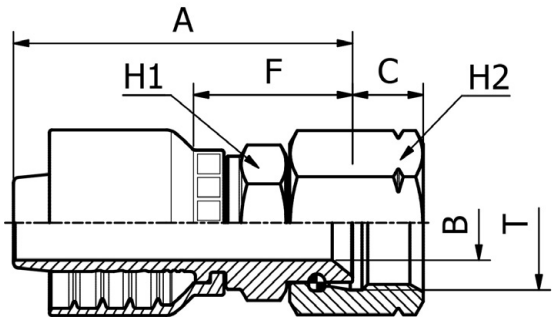


SAE STANDARD CONNECTIONS

OPF12510

JIC
MALE 37° CONE
SAE J516 / ISO 12151-5

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	F	H1		
OPF12510-04A04	6	- 4	1/4"	7/16" - 20		4.0	55.5	14.0	28.0	12.0		
OPF12510-04A05	6	- 4	1/4"	1/2" - 20		5.5	56.5	14.0	29.0	14.0		
OPF12510-04A06	6	- 4	1/4"	9/16" - 18		7.0	56.5	14.0	29.0	17.0		
OPF12510-05A05	8	- 5	5/16"	1/2" - 20		5.5	57.0	14.0	29.0	14.0		
OPF12510-05A06	8	- 5	5/16"	9/16" - 18		7.0	57.0	14.0	29.0	17.0		
OPF12510-06A06	10	- 6	3/8"	9/16" - 18		7.0	59.0	14.0	29.5	17.0		
OPF12510-06A08	10	- 6	3/8"	3/4" - 16		9.3	63.5	16.5	34.0	19.0		
OPF12510-06A10	10	- 6	3/8"	7/8" - 14		12.5	68.0	19.5	38.5	24.0		
OPF12510-08A06	12	- 8	1/2"	9/16" - 18		7.0	63.0	14.0	32.0	19.0		
OPF12510-08A08	12	- 8	1/2"	3/4" - 16		9.3	65.5	16.5	34.5	19.0		
OPF12510-08A10	12	- 8	1/2"	7/8" - 14		12.5	70.0	19.5	39.0	24.0		
OPF12510-08A12	12	- 8	1/2"	1.1/16" - 12		15.0	74.0	22.0	43.0	27.0		
OPF12510-10A10	16	- 10	5/8"	7/8" - 14		12.5	73.5	19.5	39.0	24.0		
OPF12510-10A12	16	- 10	5/8"	1.1/16" - 12		15.0	77.0	22.0	42.5	27.0		
OPF12510-12A10	19	- 12	3/4"	7/8" - 14		12.5	78.0	19.5	41.5	27.0		
OPF12510-12A12	19	- 12	3/4"	1.1/16" - 12		15.0	80.5	22.0	44.0	27.0		
OPF12510-12A14	19	- 12	3/4"	1.3/16" - 12		15.0	81.0	22.5	44.5	32.0		
OPF12510-12A16	19	- 12	3/4"	1.5/16" - 12		19.8	83.5	23.0	47.0	34.0		
OPF12510-16A12	25	- 16	1"	1.1/16" - 12		15.0	93.0	22.0	45.0	32.0		
OPF12510-16A16	25	- 16	1"	1.5/16" - 12		19.8	96.0	23.0	48.0	34.0		
OPF12510-16A20	25	- 16	1"	1.5/8" - 12		26.0	101.0	24.3	53.0	42.0		

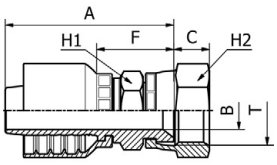


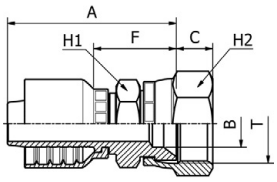
SAE STANDARD CONNECTIONS

OPF22712

JIC
FEMALE 37° CONE SEAT DOUBLE HEXAGON
SAE J516 / ISO 12151-5
(THRUST-WIRE NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	F	H1	H2	
OPF22712-12A14	19	- 12	3/4"	1.3/16" - 12		15.0	69.5	14.3	33.0	30.0	36.0	
OPF22712-16A20	25	- 16	1"	1.5/8" - 12		26.0	91.0	16.2	43.0	41.0	50.0	





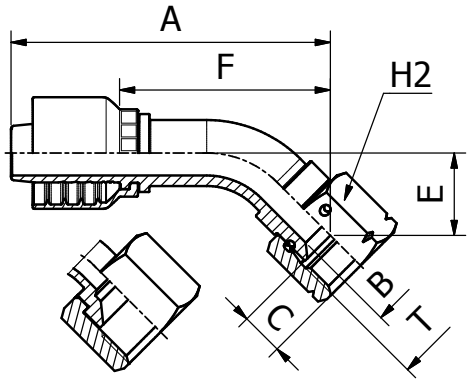
SAE STANDARD CONNECTIONS

OPF22711/OPF22711KR/ OPF22711K

JIC
FEMALE 37° CONE SEAT DOUBLE HEXAGON
SAE J516 / ISO 12151-5
(CRIMPED-BACK NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	F	H1	H2	
OPF22711-03A04K	5	- 3	3/16"	7/16" - 20		4.0	41.5	8.9	20.0	12.0	15.0	
OPF22711-04A04KR	6	- 4	1/4"	7/16" - 20		4.0	48.0	8.9	20.5	12.0	15.0	
OPF22711-04A05KR	6	- 4	1/4"	1/2" - 20		4.0	48.5	9.4	21.0	14.0	17.0	
OPF22711-04A06KR	6	- 4	1/4"	9/16" - 18		7.0	49.0	9.5	21.5	14.0	17.0	
OPF22711-05A05KR	8	- 5	5/16"	1/2" - 20		4.0	49.5	9.4	21.5	17.0	17.0	
OPF22711-06A06KR	10	- 6	3/8"	9/16" - 18		7.0	51.5	9.5	22.0	17.0	17.0	
OPF22711-06A08KR	10	- 6	3/8"	3/4" - 16		9.3	56.0	10.7	26.5	19.0	22.0	
OPF22711-08A12KR	12	- 8	1/2"	1.1/16" - 12		15.0	60.0	14.1	28.5	27.0	32.0	
OPF22711-08A06KR	12	- 8	1/2"	9/16" - 18		7.0	55.5	9.5	24.0	19.0	17.0	
OPF22711-08A08KR	12	- 8	1/2"	3/4" - 16		9.3	58.0	10.7	27.0	19.0	22.0	
OPF22711-08A10KR	12	- 8	1/2"	7/8" - 14		9.3	60.5	12.5	29.5	22.0	25.0	
OPF22711-10A08KR	16	- 10	5/8"	3/4" - 16		9.3	62.5	10.7	28.5	22.0	22.0	
OPF22711-10A10KR	16	- 10	5/8"	7/8" - 14		9.3	64.0	12.5	29.5	22.0	25.0	
OPF22711-10A12KR	16	- 10	5/8"	1.1/16" - 12		15.0	63.5	14.1	29.0	27.0	32.0	
OPF22711-12A08KR	19	- 12	3/4"	3/4" - 16		9.3	66.0	10.7	29.5	27.0	22.0	
OPF22711-12A10KR	19	- 12	3/4"	7/8" - 14		12.5	67.0	12.5	30.5	27.0	25.0	
OPF22711-12A12KR	19	- 12	3/4"	1.1/16" - 12		15.0	66.5	14.1	30.0	27.0	32.0	
OPF22711-12A16	19	- 12	3/4"	1.5/16" - 12		19.8	71.0	15.3	34.5	32.0	38.0	
OPF22711-16A12KR	25	- 16	1"	1.1/16" - 12		15.0	80.5	14.1	32.5	32.0	32.0	
OPF22711-16A16	25	- 16	1"	1.5/16" - 12		19.8	83.5	15.3	35.5	32.0	38.0	

KR: CRIMPED KOMPACT ROBUST BACK-NUT



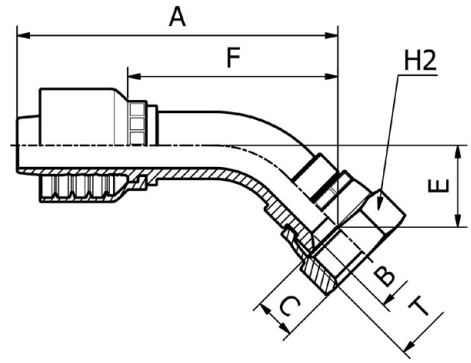
SAE STANDARD CONNECTIONS

OPF22542/OPF22543

45° JIC
FEMALE SWEPT ELBOW 37° CONE SEAT
SAE J516 / ISO 12151-5

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	F	H2	
OPF22542-04A04	6	- 4	1/4"	7/16" - 20		4.0	63.0	8.7	14.5	35.5	17.0	
OPF22542-04A05	6	- 4	1/4"	1/2" - 20		4.0	63.0	9.1	14.5	35.5	17.0	
OPF22543-04A06	6	- 4	1/4"	9/16" - 18		4.0	63.0	9.8	14.0	35.5	19.0	
OPF22542-05A05	8	- 5	5/16"	1/2" - 20		5.5	65.5	9.1	14.0	37.5	17.0	
OPF22542-05A06	8	- 5	5/16"	9/16" - 18		7.0	66.0	9.2	14.5	38.0	19.0	
OPF22542-06A06	10	- 6	3/8"	9/16" - 18		7.0	71.5	9.2	16.5	42.0	19.0	
OPF22543-06A08	10	- 6	3/8"	3/4" - 16		7.0	70.5	10.1	14.0	41.0	22.0	
OPF22543-06A10	10	- 6	3/8"	7/8" - 14		9.3	72.0	12.4	15.5	42.5	27.0	
OPF22542-08A08	12	- 8	1/2"	3/4" - 16		9.3	83.0	10.2	20.0	52.0	22.0	
OPF22543-08A10	12	- 8	1/2"	7/8" - 14		9.3	80.5	12.4	17.0	49.5	27.0	
OPF22543-08A12	12	- 8	1/2"	1.1/16" - 12		12.5	80.5	14.1	17.0	49.5	32.0	
OPF22542-10A10	16	- 10	5/8"	7/8" - 14		12.5	96.5	12.3	25.5	62.0	27.0	
OPF22543-10A12	16	- 10	5/8"	1.1/16" - 12		12.5	94.5	14.1	24.0	60.0	32.0	
OPF22542-12A12	19	- 12	3/4"	1.1/16" - 12		15.0	106.0	14.2	27.5	70.0	32.0	
OPF22542-12A14	19	- 12	3/4"	1.3/16" - 12		15.0	106.0	14.3	27.5	69.5	36.0	
OPF22542-12A16	19	- 12	3/4"	1.5/16" - 12		19.8	106.5	15.0	27.5	70.0	38.0	
OPF22542-16A12	25	- 16	1"	1.1/16" - 12		15.0	120.5	14.2	27.5	72.5	32.0	
OPF22542-16A16	25	- 16	1"	1.5/16" - 12		19.8	132.5	15.0	32.0	84.0	38.0	
OPF22542-16A20	25	- 16	1"	1.5/8" - 12		26.0	138.0	16.2	36.0	90.0	50.0	

OPF22542: THRUST WIRE NUT / OPF22543: SLIP-ON NUT

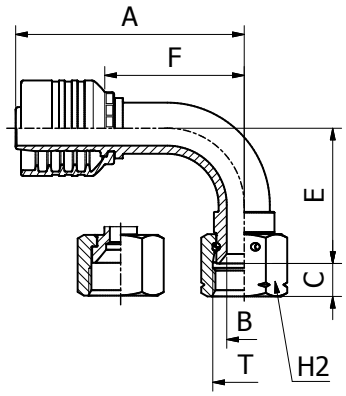


SAE STANDARD CONNECTIONS

OPF22541KR

45° ELBOW JIC
FEMALE 37° CONE SEAT
SAE J516 / ISO 12151-5
(CRIMPED-BACK NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	F	H2	
OPF22541-04A04KR	6	- 4	1/4"	7/16" - 20		4.2	62.0	8.9	13.5	34.5	15.0	
OPF22541-04A05KR	6	- 4	1/4"	1/2" - 20		4.0	62.5	9.4	14.0	35.0	17.0	
OPF22541-06A06KR	10	- 6	3/8"	9/16" - 18		7.0	71.5	9.5	16.0	42.0	17.0	
OPF22541-08A08KR	12	- 8	1/2"	3/4" - 16		9.3	83.0	10.7	20.0	52.0	22.0	
OPF22541-10A10KR	16	- 10	5/8"	7/8" - 14		12.5	95.5	12.5	22.5	61.0	25.0	
OPF22541-12A12KR	19	- 12	3/4"	1.1/16" - 12		15.0	105.5	14.1	26.5	69.0	32.0	



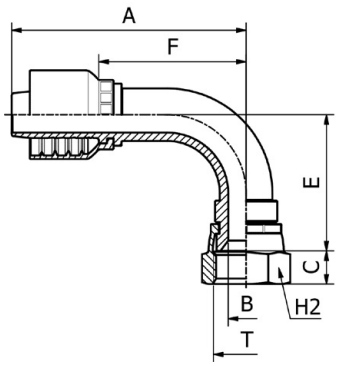
SAE STANDARD CONNECTIONS

OPF22592/OPF22593

90° JIC
FEMALE ELBOW 37° CONE SEAT
SAE J516 / ISO 12151-5

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	F	H2	
OPF22593-03A04	5	- 3	3/16"	7/16" - 20		3.0	47.5	8.5	23.5	26.0	15.0	
OPF22592-04A04	6	- 4	1/4"	7/16" - 20		4.0	56.0	8.7	27.0	28.5	17.0	
OPF22592-04A05	6	- 4	1/4"	1/2" - 20		4.0	56.0	9.1	27.5	28.5	17.0	
OPF22593-04A06	6	- 4	1/4"	9/16" - 18		4.0	57.0	9.8	28.0	29.5	19.0	
OPF22593-04A08	6	- 4	1/4"	3/4" - 16		7.0	57.0	10.0	30.5	29.5	22.0	
OPF22592-05A05	8	- 5	5/16"	1/2" - 20		5.5	59.0	9.1	28.0	31.0	17.0	
OPF22592-05A06	8	- 5	5/16"	9/16" - 18		7.0	59.0	9.2	28.5	31.0	19.0	
OPF22592-06A05	10	- 6	3/8"	1/2" - 20		5.5	59.5	9.1	26.5	30.0	17.0	
OPF22592-06A06	10	- 6	3/8"	9/16" - 18		7.0	65.0	9.2	32.5	35.5	19.0	
OPF22593-06A08	10	- 6	3/8"	3/4" - 16		7.0	66.0	10.1	29.5	36.5	22.0	
OPF22593-06A10	10	- 6	3/8"	7/8" - 14		9.3	66.0	12.4	31.5	36.5	27.0	
OPF22592-08A06	12	- 8	1/2"	9/16" - 18		7.0	68.0	9.2	33.0	37.0	19.0	
OPF22592-08A08	12	- 8	1/2"	3/4" - 16		9.3	75.5	10.2	41.0	44.0	22.0	
OPF22593-08A10	12	- 8	1/2"	7/8" - 14		9.3	76.0	12.4	36.0	45.0	27.0	
OPF22593-08A12	12	- 8	1/2"	1.1/16" - 12		12.5	76.0	14.1	36.0	45.0	32.0	
OPF22592-10A10	16	- 10	5/8"	7/8" - 14		12.5	88.0	12.3	52.5	53.5	27.0	
OPF22593-10A12	16	- 10	5/8"	1.1/16" - 12		12.5	86.0	14.1	50.0	51.5	32.0	
OPF22592-12A10	19	- 12	3/4"	7/8" - 14		12.5	91.5	12.3	52.5	55.0	27.0	
OPF22592-12A12	19	- 12	3/4"	1.1/16" - 12		15.0	98.0	14.2	58.0	62.0	32.0	
OPF22592-12A14	19	- 12	3/4"	1.3/16" - 12		15.0	99.0	14.3	58.0	63.0	36.0	
OPF22592-12A16	19	- 12	3/4"	1.5/16" - 12		19.8	99.0	15.0	57.5	63.0	38.0	
OPF22592-16A16	25	- 16	1"	1.5/16" - 12		19.8	124.0	15.0	68.5	76.0	38.0	
OPF22592-16A20	25	- 16	1"	1.5/8" - 12		26.0	125.5	16.2	74.5	77.5	50.0	

OPF22592: THRUST WIRE NUT / OPF22593: SLIP-ON NUT

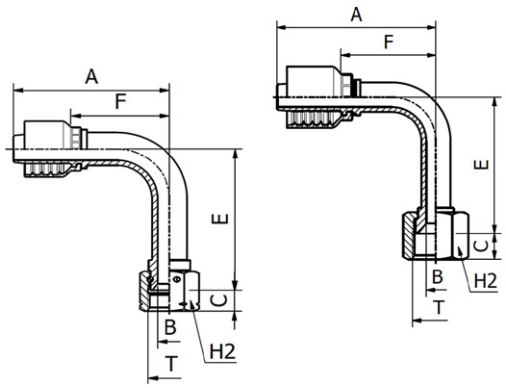


SAE STANDARD CONNECTIONS

OPF22591KR

90° ELBOW JIC
FEMALE 37° CONE SEAT
SAE J516 / ISO 12151-5
(CRIMPED-BACK NUT)

PART. REF.	HOSE BORE		Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	F	H2	
OPF22591-04A04KR	6	- 4	1/4"	7/16" - 20		4.2	56.0	8.9	26.0	28.5	15.0	
OPF22591-04A05KR	6	- 4	1/4"	1/2" - 20		4.0	56.0	9.4	26.5	28.5	17.0	
OPF22591-06A06KR	10	- 6	3/8"	9/16" - 18		7.0	65.0	9.5	32.0	35.5	17.0	
OPF22591-08A08KR	12	- 8	1/2"	3/4" - 16		9.3	75.5	10.7	40.5	44.0	22.0	
OPF22591-10A10KR	16	- 10	5/8"	7/8" - 14		12.5	88.0	12.5	47.0	53.5	25.0	
OPF22591-12A12KR	19	- 12	3/4"	1.1/16" - 12		15.0	98.0	14.1	57.0	62.0	32.0	



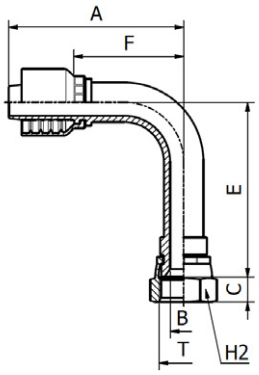
SAE STANDARD CONNECTIONS

OPF24792/OPF24793

90° JIC
FEMALE LONG DROP ELBOW 37° CONE SEAT
SAE J516 / ISO 12151-5

PART. REF.	HOSE BORE		Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	F	H2	
OPF24792-04A04	6	- 4	1/4"	7/16" - 20		4.0	56.0	8.7	45.0	28.5	17.0	
OPF24792-04A05	6	- 4	1/4"	1/2" - 20		4.0	56.0	9.1	45.0	28.5	17.0	
OPF24793-04A06	6	- 4	1/4"	9/16" - 18		4.0	57.0	9.8	55.5	29.5	19.0	
OPF24792-08A08	12	- 8	1/2"	3/4" - 16		9.3	75.5	10.2	61.0	44.0	22.0	
OPF24792-06A06	10	- 6	3/8"	9/16" - 18		7.0	65.0	9.2	55.0	35.5	19.0	
OPF24793-06A08	10	- 6	3/8"	3/4" - 16		7.0	66.0	10.1	61.5	36.5	22.0	
OPF24793-08A10	12	- 8	1/2"	7/8" - 14		9.3	76.0	12.4	65.0	45.0	27.0	
OPF24792-10A10	16	- 10	5/8"	7/8" - 14		12.5	88.0	12.3	65.5	53.5	27.0	
OPF24792-12A12	19	- 12	3/4"	1.1/16" - 12		15.0	98.0	14.2	94.5	62.0	32.0	
OPF24792-16A16	25	- 16	1"	1.5/16" - 12		19.8	125.5	15.0	110.0	77.5	38.0	

OPF24792: THRUST WIRE NUT / OPF24793: SLIP-ON NUT

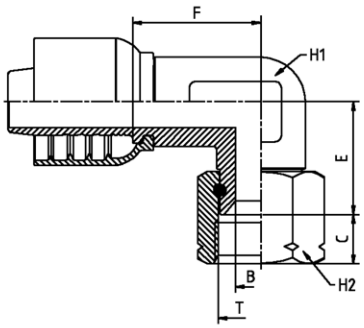


SAE STANDARD CONNECTIONS

OPF24791KR

90° LONG DROP ELBOW JIC FEMALE 37° CONE SEAT SAE J516 / ISO 12151-5 (CRIMPED-BACK NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	F	H2	
OPF24791-04A04KR	6	- 4	1/4"	7/16" - 20		4.2	56.0	8.9	45.0	28.5	15.0	
OPF24791-06A06KR	10	- 6	3/8"	9/16" - 18		7.0	65.0	9.5	55.0	35.5	17.0	
OPF24791-08A08KR	12	- 8	1/2"	3/4" - 16		9.3	75.5	10.7	64.0	44.0	22.0	
OPF24791-10A10KR	16	- 10	5/8"	7/8" - 14		12.5	88.0	12.5	70.0	53.5	25.0	
OPF24791-12A12KR	19	- 12	3/4"	1.1/16" - 12		15.0	98.0	14.1	96.0	62.0	32.0	

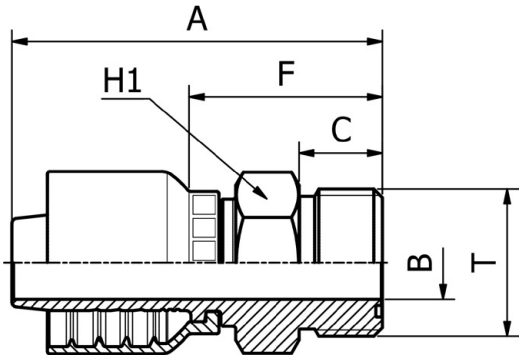


SAE STANDARD CONNECTIONS

OPF22582F

90° JIC FEMALE COMPACT ELBOW 37° CONE SEAT SAE J516 / ISO 12151-5 (THRUST-WIRE NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	F	H1	H2
OPF22582-04A04F	6	- 4	1/4"	7/16" - 20		4.0	47.5	8.7	20.5	20.0	14.0	17.0
OPF22582-04A06F	6	- 4	1/4"	9/16" - 18		7.0	47.5	9.2	21.5	20.0	14.0	19.0
OPF22582-06A06F	10	- 6	3/8"	9/16" - 18		7.0	52.5	9.2	24.0	23.0	19.0	19.0
OPF22582-06A08F	10	- 6	3/8"	3/4" - 16		9.3	56.0	10.2	28.0	26.5	22.0	22.0
OPF22582-08A08F	12	- 8	1/2"	3/4" - 16		9.3	56.0	10.2	28.0	25.0	22.0	22.0
OPF22582-08A10F	12	- 8	1/2"	7/8" - 14		12.5	56.0	12.3	29.0	25.0	22.0	27.0
OPF22582-12A12F	19	- 12	3/4"	1.1/16" - 12		15.0	74.0	14.2	33.0	37.5	27.0	32.0
OPF22582-16A16F	25	- 16	1"	1.5/16" - 12		20.0	100.0	15.0	40.0	52.0	36.0	38.0

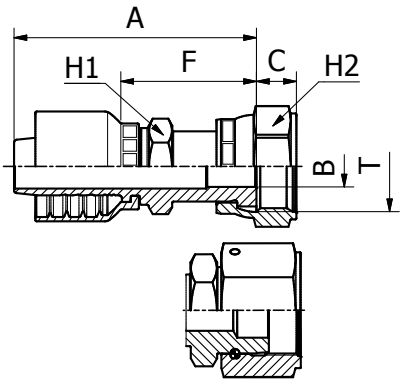


SAE STANDARD CONNECTIONS

OPF12410

ORFS
MALE
SAE J516 / ISO 12151-1

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	F	H1		
OPF12410-04A04	6	- 4	1/4"	9/16" - 18		4.0	51.5	9.8	24.0	16.0		
OPF12410-04A06	6	- 4	1/4"	11/16" - 16		6.7	54.0	11.2	26.5	19.0		
OPF12410-05A06	8	- 5	5/16"	11/16" - 16		6.7	55.0	11.2	27.0	19.0		
OPF12410-06A06	10	- 6	3/8"	11/16" - 16		6.7	57.0	11.2	27.5	19.0		
OPF12410-06A08	10	- 6	3/8"	13/16" - 16		9.3	59.5	12.8	30.0	22.0		
OPF12410-08A08	12	- 8	1/2"	13/16" - 16		9.3	61.5	12.8	30.5	22.0		
OPF12410-08A10	12	- 8	1/2"	1" - 14		12.5	66.0	15.5	35.0	27.0		
OPF12410-10A10	16	- 10	5/8"	1" - 14		12.5	69.0	15.5	34.5	27.0		
OPF12410-10A12	16	- 10	5/8"	1.3/16" - 12		15.0	72.0	17.0	37.5	32.0		
OPF12410-12A12	19	- 12	3/4"	1.3/16" - 12		15.0	75.5	17.0	39.0	32.0		
OPF12410-12A16	19	- 12	3/4"	1.7/16" - 12		19.8	77.0	17.5	40.5	38.0		
OPF12410-16A16	25	- 16	1"	1.7/16" - 12		19.8	90.0	17.5	42.0	38.0		

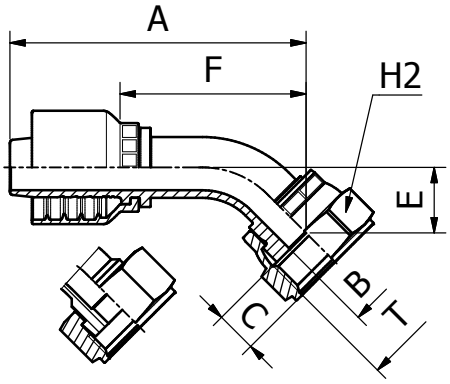


SAE STANDARD CONNECTIONS

OPF22411/ OPF22412

ORFS
FEMALE
SAE J516 / ISO 12151-1
PULL-BACK TYPE

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	F	H1	H2	
OPF22411-04A04	6	- 4	1/4"	9/16" - 18		4.0	55.0	8.0	27.5	13.0	19.0	
OPF22411-04A06	6	- 4	1/4"	11/16" - 16		7.0	57.5	9.5	30.0	16.0	22.0	
OPF22411-05A06	8	- 5	5/16"	11/16" - 16		7.0	58.5	9.5	30.5	16.0	22.0	
OPF22411-06A06	10	- 6	3/8"	11/16" - 16		7.0	60.5	9.5	31.0	16.0	22.0	
OPF22411-06A08	10	- 6	3/8"	13/16" - 16		9.3	65.0	11.0	35.5	19.0	24.0	
OPF22411-08A06	12	- 8	1/2"	11/16" - 16		7.0	63.0	9.5	32.0	19.0	22.0	
OPF22411-08A08	12	- 8	1/2"	13/16" - 16		9.3	67.0	11.0	36.0	19.0	24.0	
OPF22411-08A10	12	- 8	1/2"	1" - 14		11.5	69.5	13.5	38.5	24.0	30.0	
OPF22411-08A12	12	- 8	1/2"	1.3/16" - 12		13.9	73.0	14.5	42.0	28.0	36.0	
OPF22411-10A10	16	- 10	5/8"	1" - 14		11.5	73.0	13.5	38.5	24.0	30.0	
OPF22411-10A12	16	- 10	5/8"	1.3/16" - 12		13.9	76.5	14.5	42.0	28.0	36.0	
OPF22411-12A10	19	- 12	3/4"	1" - 14		11.5	77.5	13.5	41.0	28.0	30.0	
OPF22411-12A12	19	- 12	3/4"	1.3/16" - 12		13.9	80.0	14.5	43.5	28.0	36.0	
OPF22411-12A16	19	- 12	3/4"	1.7/16" - 12		19.8	82.0	15.0	45.5	36.0	41.0	
OPF22411-16A12	25	- 16	1"	1.3/16" - 12		13.9	94.0	13.5	48.0	36.0	36.0	
OPF22411-16A16	25	- 16	1"	1.7/16" - 12		19.8	94.5	15.0	46.5	36.0	41.0	



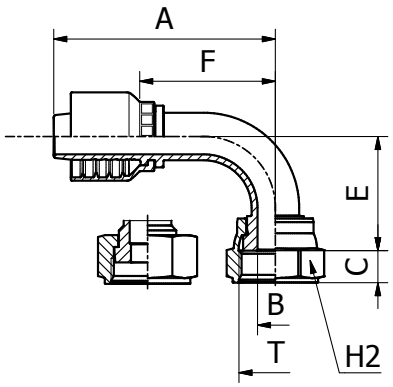
SAE STANDARD CONNECTIONS

OPF22441/OPF22443

45° ORFS
FEMALE ELBOW
SAE J516 / ISO 12151-1

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	F	H2	
OPF22443-04A04	6	- 4	1/4"	9/16" - 18		4.0	58.5	8.2	10.5	31.0	17.0	
OPF22443-04A06	6	- 4	1/4"	11/16" - 16		7.0	58.5	9.5	10.5	31.0	22.0	
OPF22443-05A06	8	- 5	5/16"	11/16" - 16		7.0	62.0	9.5	10.5	34.0	22.0	
OPF22443-06A06	10	- 6	3/8"	11/16" - 16		6.0	61.5	9.5	11.0	32.5	22.0	
OPF22443-06A08	10	- 6	3/8"	13/16" - 16		9.3	63.0	11.0	12.5	34.0	24.0	
OPF22441-08A06	12	- 8	1/2"	11/16" - 16		7.0	63.5	9.5	11.0	32.5	22.0	
OPF22443-08A08	12	- 8	1/2"	13/16" - 16		9.0	73.0	11.0	13.0	42.0	24.0	
OPF22443-08A10	12	- 8	1/2"	1" - 14		11.5	73.0	13.5	13.5	42.0	30.0	
OPF22443-08A12	12	- 8	1/2"	1.3/16" - 12		13.9	78.0	14.5	18.5	46.5	36.0	
OPF22443-10A10	16	- 10	5/8"	1" - 14		11.5	83.5	13.5	16.0	49.0	30.0	
OPF22443-10A12	16	- 10	5/8"	1.3/16" - 12		13.9	86.0	14.5	18.5	51.5	36.0	
OPF22441-12A10	19	- 12	3/4"	1" - 14		11.5	87.0	13.5	16.5	50.5	30.0	
OPF22443-12A12	19	- 12	3/4"	1.3/16" - 12		13.9	97.0	14.5	21.5	60.5	36.0	
OPF22443-12A16	19	- 12	3/4"	1.7/16" - 12		19.8	96.5	14.8	21.0	60.0	41.0	
OPF22443-16A16	25	- 16	1"	1.7/16" - 12		19.8	120.0	14.8	23.5	72.0	41.0	
OPF22443-16A20	25	- 16	1"	1.11/16" - 12		26.0	122.0	14.8	25.0	74.0	50.0	

OPF22441: CRIMPED BACK-NUT / OPF22443: SLIP-ON NUT



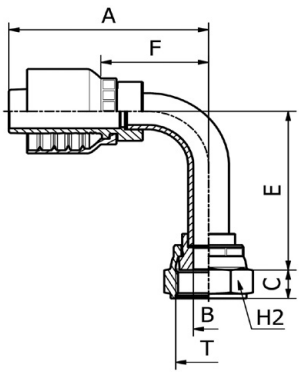
SAE STANDARD CONNECTIONS

OPF22491/OPF22493

90° ORFS
FEMALE SWEPT ELBOW
SAE J516 / ISO 12151-1

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	F	H2	
OPF22493-04A04	6	- 4	1/4"	9/16" - 18		4.0	55.0	8.2	22.0	27.5	17.0	
OPF22493-04A06	6	- 4	1/4"	11/16" - 16		7.0	55.0	9.5	22.0	27.5	22.0	
OPF22493-05A06	8	- 5	5/16"	11/16" - 16		7.0	60.0	9.5	23.0	32.0	22.0	
OPF22493-06A06	10	- 6	3/8"	11/16" - 16		6.0	59.5	9.5	24.0	30.0	22.0	
OPF22493-06A08	10	- 6	3/8"	13/16" - 16		9.3	59.5	11.0	26.5	30.0	24.0	
OPF22491-08A06	12	- 8	1/2"	11/16" - 16		7.0	61.5	9.5	24.5	30.0	22.0	
OPF22493-08A08	12	- 8	1/2"	13/16" - 16		9.0	71.5	11.0	30.0	40.5	24.0	
OPF22493-08A10	12	- 8	1/2"	1" - 14		11.5	71.0	13.5	30.5	40.0	30.0	
OPF22493-08A12	12	- 8	1/2"	1.3/16" - 12		13.9	71.0	14.5	37.5	39.5	36.0	
OPF22493-10A10	16	- 10	5/8"	1" - 14		11.5	82.5	13.5	37.5	48.0	30.0	
OPF22493-10A12	16	- 10	5/8"	1.3/16" - 12		13.9	82.5	14.5	41.0	48.0	36.0	
OPF22491-12A10	19	- 12	3/4"	1" - 14		11.5	85.5	13.5	38.0	49.0	30.0	
OPF22493-12A12	19	- 12	3/4"	1.3/16" - 12		13.9	93.0	14.5	48.0	56.5	36.0	
OPF22493-12A16	19	- 12	3/4"	1.7/16" - 12		19.8	93.0	14.8	47.5	56.5	41.0	
OPF22491-16A12	25	- 16	1"	1.3/16" - 12		13.9	106.0	13.5	48.0	57.5	36.0	
OPF22493-16A16	25	- 16	1"	1.7/16" - 12		19.8	119.5	14.8	56.0	71.5	41.0	
OPF22493-16A20	25	- 16	1"	1.11/16" - 12		26.0	119.5	14.8	58.5	71.5	50.0	

OPF22491: CRIMPED BACK-NUT / OPF22493: SLIP-ON NUT



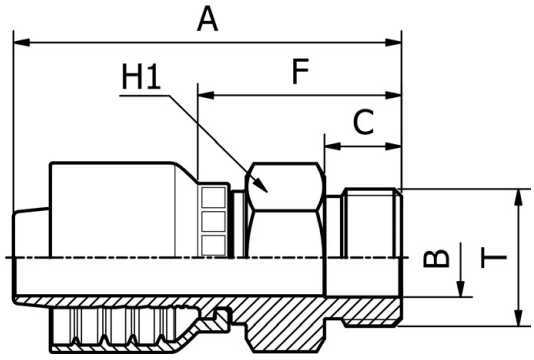
SAE STANDARD CONNECTIONS

OPF24491

90° ORFS
FEMALE LONG DROP ELBOW
SAE J516 / ISO 12151-1
(CRIMPED-BACK NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	F	H2	
OPF24491-04A04	6	- 4	1/4"	9/16" - 18		4.4	52.5	8.0	46.0	25.0	17.0	
OPF24491-06A06	10	- 6	3/8"	11/16" - 16		6.7	61.5	9.5	54.0	32.0	22.0	
OPF24491-06A08	10	- 6	3/8"	13/16" - 16		6.7	61.5	11.0	54.0	32.0	24.0	
OPF24491-08A08	12	- 8	1/2"	13/16" - 16		9.6	68.0	11.0	64.0	37.0	24.0	
OPF24491-08A10	12	- 8	1/2"	1" - 14		9.6	68.0	12.5	64.5	37.0	30.0	
OPF24491-10A10	16	- 10	5/8"	1" - 14		12.0	75.5	13.0	70.0	41.0	30.0	
OPF24491-10A12	16	- 10	5/8"	1.3/16" - 12		12.7	75.5	13.5	73.0	41.0	36.0	
OPF24491-12A12	19	- 12	3/4"	1.3/16" - 12		15.0	95.0	13.5	96.0	58.5	36.0	
OPF24491-16A16	25	- 16	1"	1.7/16" - 12		19.8	119.5	13.5	114.0	71.5	41.0	

All items made by brazing with the exception of OPF24491-12A12 and OPF24491-16A16



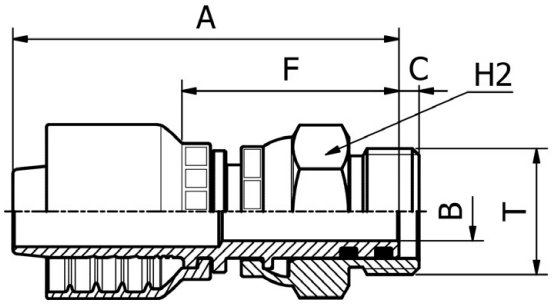
SAE STANDARD CONNECTIONS

OPF13010

SAE MALE
O-RING BOSS TYPE
SAE J516 / ISO 11926

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	F	H1		
OPF13010-04A04	6	- 4	1/4"	7/16" - 20		4.4	51.5	9.1	24.0	14.0		
OPF13010-04A06	6	- 4	1/4"	9/16" - 18		7.5	52.0	9.9	24.5	17.0		
OPF13010-06A06	10	- 6	3/8"	9/16" - 18		7.5	55.0	9.9	25.5	17.0		
OPF13010-06A08	10	- 6	3/8"	3/4" - 16		9.9	58.0	11.1	28.5	22.0		
OPF13010-08A08	12	- 8	1/2"	3/4" - 16		9.9	60.0	11.1	29.0	22.0		
OPF13010-08A10	12	- 8	1/2"	7/8" - 14		12.3	63.0	12.7	32.0	25.0		
OPF13010-10A10	16	- 10	5/8"	7/8" - 14		12.5	63.0	12.7	32.0	25.0		
OPF13010-10A12	16	- 10	5/8"	1.1/16" - 12		15.5	72.0	15.1	37.5	32.0		
OPF13010-12A12	19	- 12	3/4"	1.1/16" - 12		15.5	76.0	15.1	39.5	32.0		
OPF13010-12A16	19	- 12	3/4"	1.5/16" - 12		21.5	76.5	15.1	40.0	38.0		
OPF13010-16A16	25	- 16	1"	1.5/16" - 12		21.5	89.5	15.1	41.0	38.0		

SAE STANDARD CONNECTIONS



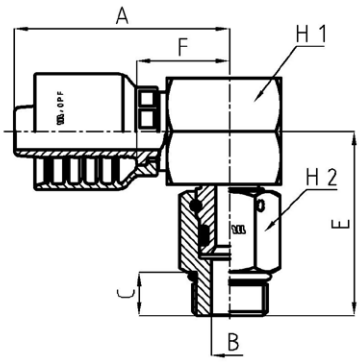
OPF14310

SAE
SWIVEL MALE OR. BOSS TYPE

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	F	H2		
OPF14310-04A04	6	- 4	1/4"	7/16" - 20		4.0	70.5	9.1	43.0	17.0		
OPF14310-04A06	6	- 4	1/4"	9/16" - 18		7.0	71.5	9.9	44.0	22.0		
OPF14310-06A06	10	- 6	3/8"	9/16" - 18		7.0	77.5	9.9	48.0	22.0		
OPF14310-06A08	10	- 6	3/8"	3/4" - 16		9.3	76.5	11.1	47.0	22.0		
OPF14310-08A08	12	- 8	1/2"	3/4" - 16		9.3	84.0	11.1	53.0	27.0		
OPF14310-08A10	12	- 8	1/2"	7/8" - 14		9.3	72.4	13.0	41.5	27.0		
OPF14310-12A12	19	- 12	3/4"	1.1/16" - 12		12.5	87.0	15.0	50.5	32.0		

Not to be used as a live swivel

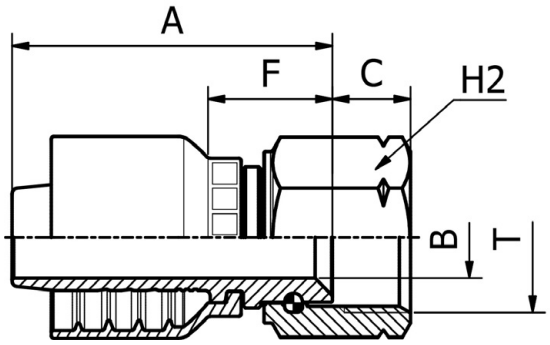
SAE STANDARD CONNECTIONS



OPF14390

90° SAE
SWIVEL MALE OR. BOSS

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	E	F	H1	H2
OPF14390-06A06	10	- 6	3/8"	9/16" - 18		5.7	49.5	9.9	40.0	20.0	22.0	17.0
OPF14390-06A08	10	- 6	3/8"	3/4" - 16		9.3	49.5	11.1	44.5	20.0	22.0	22.0
OPF14390-08A08	12	- 8	1/2"	3/4" - 16		9.3	54.5	11.1	47.0	23.5	27.0	22.0
OPF14390-08A10	12	- 8	1/2"	7/8" - 14		9.8	54.5	13.0	47.0	23.5	27.0	27.0
OPF14390-10A10	16	- 10	5/8"	7/8" - 14		9.8	58.0	13.0	47.0	23.5	27.0	27.0
OPF14390-12A12	19	- 12	3/4"	1.1/16" - 12		13.0	64.5	15.0	58.5	28.0	34.0	32.0

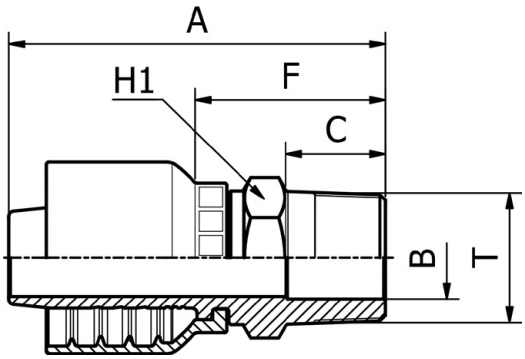


SAE STANDARD CONNECTIONS

OPF22612

SAE FEMALE
45° CONE SEAT
SAE J516 / J512
(THRUST-WIRE NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	F	H2		
OPF22612-06A06	10	- 6	3/8"	9/16" - 18		7.0	46.0	10.8	16.5	22.0		



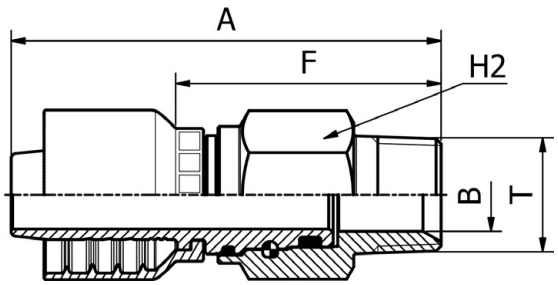
SAE STANDARD CONNECTIONS

OPF12810

NPTF
MALE 60° CONE SEAT
SAE J516 / J514

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	F	H1		
OPF12810-03A02	5	- 3	3/16"	1/8" - 27		3.0	45.0	10.0	23.5	12.0		
OPF12810-03A04	5	- 3	3/16"	1/4" - 18		5.5	50.5	14.5	29.0	14.0		
OPF12810-04A02	6	- 4	1/4"	1/8" - 27		4.0	51.5	10.0	24.0	12.0		
OPF12810-04A04	6	- 4	1/4"	1/4" - 18		5.5	56.5	14.5	29.0	14.0		
OPF12810-04A06	6	- 4	1/4"	3/8" - 18		9.3	55.0	14.5	27.5	19.0		
OPF12810-04A08	6	- 4	1/4"	1/2" - 14		9.3	61.0	19.2	33.5	24.0		
OPF12810-05A04	8	- 5	5/16"	1/4" - 18		5.5	57.5	14.5	29.5	14.0		
OPF12810-05A06	8	- 5	5/16"	3/8" - 18		9.3	60.0	14.5	32.0	19.0		
OPF12810-06A04	10	- 6	3/8"	1/4" - 18		5.5	59.5	14.5	30.0	14.0		
OPF12810-06A06	10	- 6	3/8"	3/8" - 18		9.3	58.0	14.5	28.5	19.0		
OPF12810-06A08	10	- 6	3/8"	1/2" - 14		12.5	64.0	19.2	34.5	24.0		
OPF12810-08A06	12	- 8	1/2"	3/8" - 18		9.3	60.0	14.5	29.0	19.0		
OPF12810-08A08	12	- 8	1/2"	1/2" - 14		12.5	66.0	19.2	35.0	24.0		
OPF12810-08A12	12	- 8	1/2"	3/4" - 14		15.5	66.5	19.2	35.5	27.0		
OPF12810-10A08	16	- 10	5/8"	1/2" - 14		12.5	73.0	19.2	38.5	24.0		
OPF12810-10A12	16	- 10	5/8"	3/4" - 14		16.0	74.5	19.2	40.0	27.0		
OPF12810-12A08	19	- 12	3/4"	1/2" - 14		12.5	73.0	19.2	36.5	27.0		
OPF12810-12A12	19	- 12	3/4"	3/4" - 14		16.0	73.0	19.2	36.5	27.0		
OPF12810-12A16	19	- 12	3/4"	1" - 11,5		19.8	82.5	24.2	46.0	36.0		
OPF12810-16A12	25	- 16	1"	3/4" - 14		15.5	87.0	19.2	39.0	32.0		
OPF12810-16A16	25	- 16	1"	1" - 11,5		19.8	92.0	24.2	44.0	36.0		
OPF12810-16A20	25	- 16	1"	1.1/4" - 11,5		26.0	104.5	25.0	56.5	46.0		

SAE STANDARD CONNECTIONS



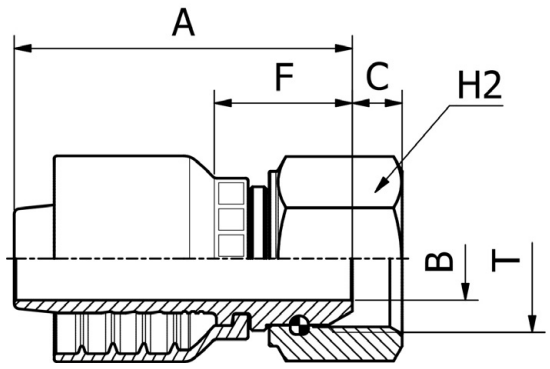
OPF14110R

NPTF
SWIVEL MALE

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	F	H1		
OPF14110-04A02R	6	- 4	1/4"	1/8" - 28		3.0	69.5	10.0	42.0	17.0		
OPF14110-04A04R	6	- 4	1/4"	1/4" - 18		4.0	74.0	14.5	46.5	17.0		
OPF14110-04A06R	6	- 4	1/4"	3/8" - 18		7.0	74.0	14.5	46.5	19.0		
OPF14110-06A04R	10	- 6	3/8"	1/4" - 18		4.0	80.0	14.5	50.5	22.0		
OPF14110-06A06R	10	- 6	3/8"	3/8" - 18		7.0	80.0	14.5	50.5	22.0		
OPF14110-06A08R	10	- 6	3/8"	1/2" - 14		9.3	84.5	19.2	55.0	24.0		
OPF14110-08A08R	12	- 8	1/2"	1/2" - 14		9.3	90.0	19.2	59.0	27.0		
OPF14110-12A12R	19	- 12	3/4"	3/4" - 14		16.0	94.5	19.2	58.0	32.0		
OPF14110-16A16R	25	- 16	1"	1" - 11		19.8	114.0	24.2	66.0	38.0		

Not to be used as a live swivel

SAE STANDARD CONNECTIONS

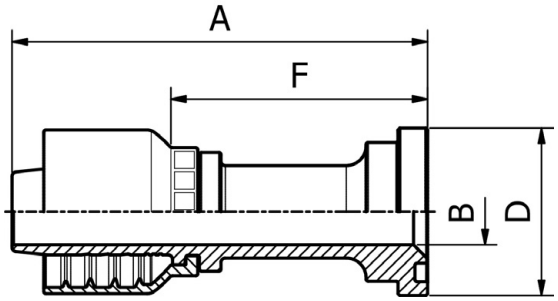


OPF22812

NPSM
FEMALE 60° CONE
SAE J516 / J514
(THRUST-WIRE NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	F	H2		
OPF22812-04A04	6	- 4	1/4"	1/4" - 18		4.0	45.0	4.2	17.5	19.0		
OPF22812-06A06	10	- 6	3/8"	3/8" - 18		7.0	50.5	6.0	21.0	22.0		
OPF22812-08A08	12	- 8	1/2"	1/2" - 14		9.3	54.0	6.5	23.0	27.0		
OPF22812-12A12	19	- 12	3/4"	3/4" - 14		15.0	61.0	9.0	24.5	32.0		
OPF22812-16A16	25	- 16	1"	1" - 11,5		19.8	75.5	10.5	27.5	38.0		

SAE STANDARD CONNECTIONS

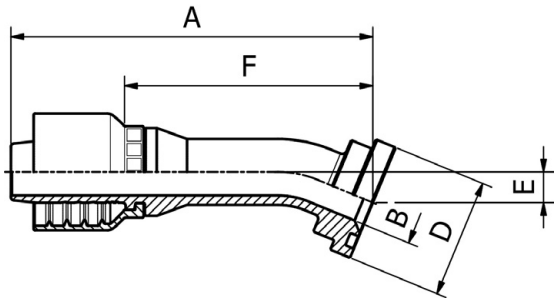


OPF23311

ISO / SAE
CODE 61 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	F			
OPF23311-08A08	12	- 8	1/2"	1/2"		9.3	82.0	30.3	51.0			
OPF23311-08A12	12	- 8	1/2"	3/4"		15.1	89.0	38.0	58.0			
OPF23311-10A12	16	- 10	5/8"	3/4"		15.0	100.0	38.0	65.5			
OPF23311-12A12	19	- 12	3/4"	3/4"		15.0	94.5	38.0	58.0			
OPF23311-12A16	19	- 12	3/4"	1"		20.0	94.5	44.6	58.0			
OPF23311-16A16	25	- 16	1"	1"		19.8	112.5	44.6	64.5			
OPF23311-16A20	25	- 16	1"	1.1/4"		26.0	118.5	51.0	70.5			

SAE STANDARD CONNECTIONS

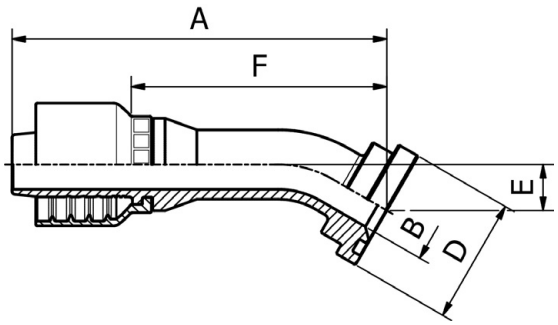


OPF23321

22,5° ISO / SAE
CODE 61 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	F		
OPF23321-08A08	12	- 8	1/2"	1/2"		9.3	95.0	30.3	8.0	64.0		
OPF23321-12A12	19	- 12	3/4"	3/4"		15.0	111.0	38.0	10.0	74.5		
OPF23321-12A16	19	- 12	3/4"	1"		20.0	111.0	44.6	10.0	74.5		
OPF23321-16A16	25	- 16	1"	1"		19.8	137.0	44.6	11.5	89.0		

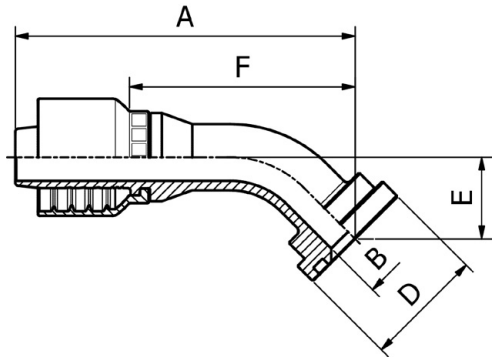
SAE STANDARD CONNECTIONS



OPF23331

30° ISO / SAE
CODE 61 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	F		
OPF23331-08A08	12	- 8	1/2"	1/2"		9.3	93.5	30.3	11.0	62.5		
OPF23331-12A12	19	- 12	3/4"	3/4"		15.0	109.5	38.0	14.0	73.0		
OPF23331-12A16	19	- 12	3/4"	1"		20.0	109.5	44.6	14.0	73.0		
OPF23331-16A16	25	- 16	1"	1"		19.8	135.0	44.6	16.5	87.0		

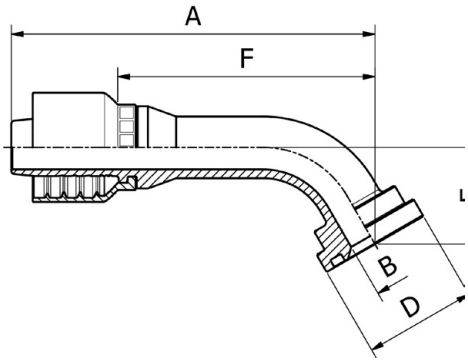


SAE STANDARD CONNECTIONS

OPF23341

45° ISO / SAE
CODE 61 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	F		
OPF23341-08A08	12	- 8	1/2"	1/2"		9.3	90.0	30.3	18.5	58.5		
OPF23341-08A12	12	- 8	1/2"	3/4"		15.0	90.5	38.0	19.0	59.5		
OPF23341-10A12	16	- 10	5/8"	3/4"		15.0	95.0	38.0	22.0	61.0		
OPF23341-12A12	19	- 12	3/4"	3/4"		15.0	104.5	38.0	23.0	68.5		
OPF23341-12A16	19	- 12	3/4"	1"		20.0	104.5	44.6	23.0	68.5		
OPF23341-16A16	25	- 16	1"	1"		19.8	129.5	44.6	27.5	81.5		
OPF23341-16A20	25	- 16	1"	1.1/4"		26.0	129.5	51.0	27.5	81.5		

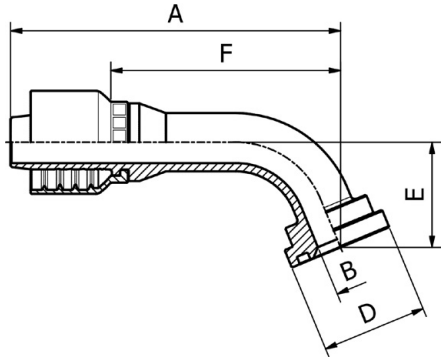


SAE STANDARD CONNECTIONS

OPF23361

60° ISO / SAE
CODE 61 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	F		
OPF23361-08A08	12	- 8	1/2"	1/2"		9.3	102.5	30.3	26.0	71.5		
OPF23361-12A12	19	- 12	3/4"	3/4"		15.0	123.5	38.0	33.0	87.0		
OPF23361-16A16	25	- 16	1"	1"		19.8	152.0	44.6	39.0	104.0		
OPF23361-16A20	25	- 16	1"	1.1/4"		26.0	152.0	51.0	39.0	104.0		

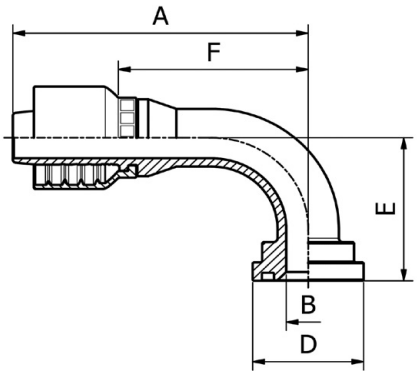


SAE STANDARD CONNECTIONS

OPF23371

67,5° ISO / SAE
CODE 61 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	F		
OPF23371-08A08	12	- 8	1/2"	1/2"		9.3	99.0	30.3	29.5	68.0		
OPF23371-12A12	19	- 12	3/4"	3/4"		15.0	118.5	38.0	38.0	82.0		
OPF23371-12A16	19	- 12	3/4"	1"		20.0	118.5	44.6	38.0	82.0		
OPF23371-16A16	25	- 16	1"	1"		19.8	147.0	44.6	45.0	98.5		



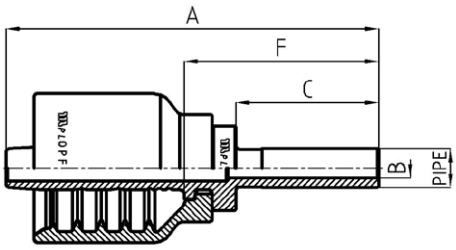
SAE STANDARD CONNECTIONS

OPF23391

90° ISO / SAE
CODE 61 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	F		
OPF23391-08A08	12	- 8	1/2"	1/2"		9.3	85.5	30.3	40.0	54.5		
OPF23391-08A12	12	- 8	1/2"	3/4"		15.0	85.5	38.0	41.0	54.5		
OPF23391-10A12	16	- 10	5/8"	3/4"		15.0	90.0	38.0	47.5	56.0		
OPF23391-12A12	19	- 12	3/4"	3/4"		15.0	101.0	38.0	52.0	64.5		
OPF23391-12A16	19	- 12	3/4"	1"		20.0	101.0	44.6	52.0	64.5		
OPF23391-16A16	25	- 16	1"	1"		19.8	125.5	44.6	62.0	77.5		
OPF23391-16A20	25	- 16	1"	1.1/4"		26.0	125.5	51.0	62.0	77.5		

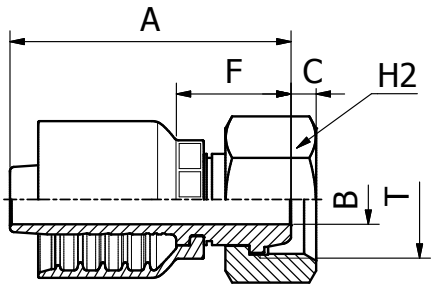
DIN STANDARD CONNECTIONS



OPF22010

METRIC
STANDPIPE STRAIGHT L.T.

PART. REF.	HOSE BORE			Pipe		DIMENSIONS mm						
	DN	Dash	inch	mm		B	A	C	F			
OPF22010-04A06	6	- 4	1/4"	6.0		3.0	57.5	22.0	30.0			
OPF22010-06A10	10	- 6	3/8"	10.0		7.0	61.0	23.0	31.5			



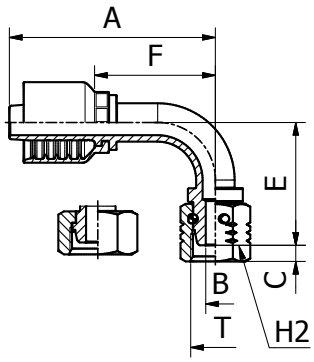
DIN STANDARD CONNECTIONS

OPF21312/OPF21313

METRIC
FEMALE
MULTISEAL

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	F	H2		
OPF21312-06A16	10	- 6	3/8"	M 16X1,5	10.0	7.0	51.0	5.0	21.5	19.0		
OPF21313-06A18	10	- 6	3/8"	M 18X1,5	12.0	7.0	49.5	4.0	20.0	22.0		
OPF21313-08A22	12	- 8	1/2"	M 22X1,5	15.0	9.3	52.5	4.7	21.5	27.0		

OPF21312: THRUST WIRE NUT / OPF21313: SLIP-ON NUT



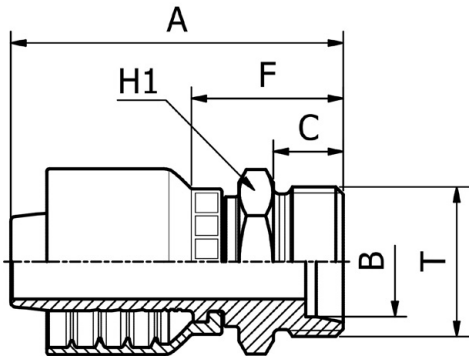
DIN STANDARD CONNECTIONS

OPF21392/OPF21393

90° METRIC FEMALE MULTISEAL

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	E	F	H2	
OPF21392-06A16	10	- 6	3/8"	M 16X1,5	10.0	7.0	65.0	5.0	38.0	35.5	19.0	
OPF21393-06A18	10	- 6	3/8"	M 18X1,5	12.0	7.0	66.0	4.0	31.5	36.5	22.0	

OPF21392: THRUST WIRE NUT / OPF21393: SLIP-ON NUT

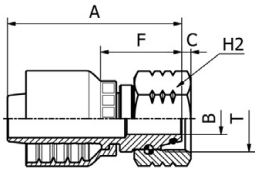


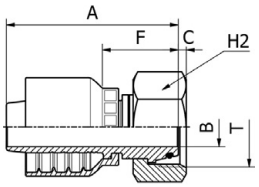
DIN STANDARD CONNECTIONS

OPF11110

METRIC MALE 24° CONE SEAT LIGHT DUTY DIN 20066 / ISO 12151-2

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	F	H1		
OPF11110-04A12	6	- 4	1/4"	M 12X1,5	6.0	4.0	49.0	10.0	21.5	14.0		
OPF11110-04A14	6	- 4	1/4"	M 14X1,5	8.0	4.0	49.0	10.0	21.5	14.0		
OPF11110-04A16	6	- 4	1/4"	M 16X1,5	10.0	7.0	51.0	11.0	23.5	17.0		
OPF11110-04A18	6	- 4	1/4"	M 18X1,5	12.0	9.0	51.0	11.0	23.5	19.0		
OPF11110-05A16	8	- 5	5/16"	M 16X1,5	10.0	7.0	52.0	11.0	24.0	17.0		
OPF11110-05A18	8	- 5	5/16"	M 18X1,5	12.0	9.0	52.0	11.0	24.0	19.0		
OPF11110-06A16	10	- 6	3/8"	M 16X1,5	10.0	7.0	53.5	11.0	24.0	17.0		
OPF11110-06A18	10	- 6	3/8"	M 18X1,5	12.0	9.0	54.0	11.0	24.5	19.0		
OPF11110-06A22	10	- 6	3/8"	M 22X1,5	15.0	10.0	55.0	12.0	25.5	22.0		
OPF11110-08A22	12	- 8	1/2"	M 22X1,5	15.0	10.0	56.5	12.0	25.5	22.0		
OPF11110-08A26	12	- 8	1/2"	M 26X1,5	18.0	12.5	57.5	12.0	26.5	27.0		
OPF11110-10A22	16	- 10	5/8"	M 22X1,5	15.0	10.0	60.0	12.0	25.5	22.0		
OPF11110-10A26	16	- 10	5/8"	M 26X1,5	18.0	12.5	61.0	12.0	26.5	27.0		
OPF11110-12A30	19	- 12	3/4"	M 30X2	22.0	15.0	66.5	14.0	30.0	30.0		





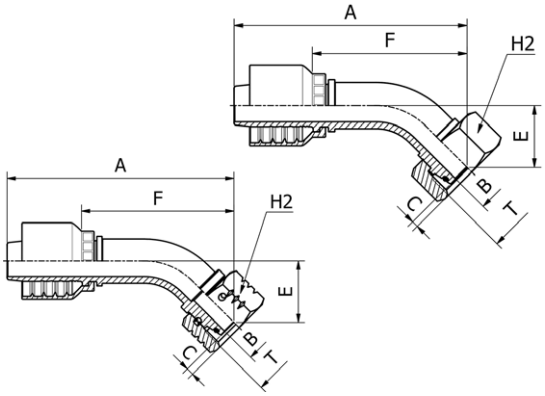
DIN STANDARD CONNECTIONS

OPF21512/OPF21513

METRIC
O-RING FEMALE 24° CONE LIGHT DUTY
DIN 20066 / ISO 12151-2

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	F	H2		
OPF21512-04A12	6	- 4	1/4"	M 12X1,5	6.0	3.0	48.5	2.2	21.0	17.0		
OPF21513-04A14	6	- 4	1/4"	M 14X1,5	8.0	4.0	49.5	1.3	22.0	17.0		
OPF21513-04A16	6	- 4	1/4"	M 16X1,5	10.0	6.0	50.0	1.8	22.5	19.0		
OPF21513-04A18	6	- 4	1/4"	M 18X1,5	12.0	7.0	49.5	2.0	22.0	22.0		
OPF21512-05A14	8	- 5	5/16"	M 14X1,5	8.0	4.0	48.0	2.9	20.0	17.0		
OPF21513-05A16	8	- 5	5/16"	M 16X1,5	10.0	6.0	50.5	1.8	22.5	19.0		
OPF21513-05A18	8	- 5	5/16"	M 18X1,5	12.0	7.0	50.0	2.0	22.0	22.0		
OPF21512-06A16	10	- 6	3/8"	M 16X1,5	10.0	6.0	52.5	3.0	23.0	19.0		
OPF21513-06A18	10	- 6	3/8"	M 18X1,5	12.0	7.0	52.0	2.0	22.5	22.0		
OPF21513-06A22	10	- 6	3/8"	M 22X1,5	15.0	9.3	54.5	1.5	25.0	27.0		
OPF21512-08A18	12	- 8	1/2"	M 18X1,5	12.0	7.0	60.0	2.9	29.0	22.0		
OPF21513-08A22	12	- 8	1/2"	M 22X1,5	15.0	9.3	56.5	1.5	25.5	27.0		
OPF21513-08A26	12	- 8	1/2"	M 26X1,5	18.0	12.5	57.0	2.0	26.0	32.0		
OPF21513-10A26	16	- 10	5/8"	M 26X1,5	18.0	12.5	60.5	2.0	26.0	32.0		
OPF21513-10A30	16	- 10	5/8"	M 30X2	22.0	15.0	68.5	3.0	34.0	36.0		
OPF21512-12A26	19	- 12	3/4"	M 26X1,5	18.0	12.5	67.5	2.3	31.0	32.0		
OPF21513-12A30	19	- 12	3/4"	M 30X2	22.0	15.0	64.5	3.0	28.0	36.0		
OPF21513-12A36	19	- 12	3/4"	M 36X2	28.0	20.0	65.0	3.7	28.5	41.0		
OPF21513-16A36	25	- 16	1"	M 36X2	28.0	19.8	77.5	3.7	29.5	41.0		

OPF21512: THRUST WIRE NUT / OPF21513: SLIP-ON NUT



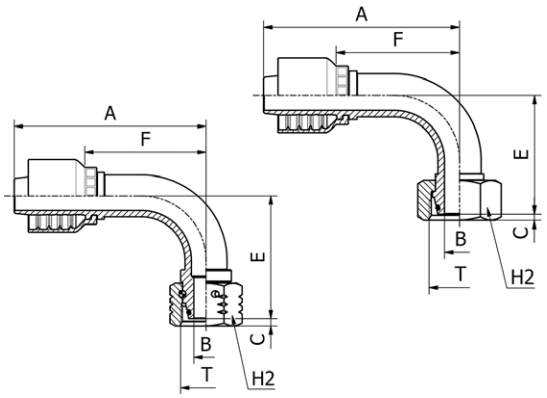
DIN STANDARD CONNECTIONS

OPF21542/OPF21543

45° METRIC
O-RING FEMALE SWEPT ELBOW 24° CONE
LIGHT DUTY
DIN 20066 / ISO 12151-2

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	E	F	H2	
OPF21543-04A14	6	- 4	1/4"	M 14X1,5	8.0	4.0	65.5	1.3	16.5	38.0	17.0	
OPF21543-04A16	6	- 4	1/4"	M 16X1,5	10.0	6.0	65.5	1.8	17.0	38.0	19.0	
OPF21543-05A16	8	- 5	5/16"	M 16X1,5	10.0	6.0	69.5	1.8	17.5	41.5	19.0	
OPF21543-05A18	8	- 5	5/16"	M 18X1,5	12.0	7.0	69.5	2.0	17.0	41.5	22.0	
OPF21542-06A16	10	- 6	3/8"	M 16X1,5	10.0	6.0	77.0	3.0	21.5	47.5	19.0	
OPF21543-06A18	10	- 6	3/8"	M 18X1,5	12.0	7.0	73.0	2.0	16.5	43.5	22.0	
OPF21543-06A22	10	- 6	3/8"	M 22X1,5	15.0	9.3	74.0	1.5	18.0	45.0	27.0	
OPF21543-08A22	12	- 8	1/2"	M 22X1,5	15.0	9.3	83.0	1.5	19.0	52.0	27.0	
OPF21543-10A26	16	- 10	5/8"	M 26X1,5	18.0	12.5	96.5	2.0	26.5	62.0	32.0	
OPF21543-12A30	19	- 12	3/4"	M 30X2	22.0	15.0	107.5	3.0	28.5	71.0	36.0	
OPF21543-16A36	25	- 16	1"	M 36X2	28.0	19.8	133.0	3.7	32.0	85.0	41.0	

OPF21542: THRUST WIRE NUT / OPF21543: SLIP-ON NUT



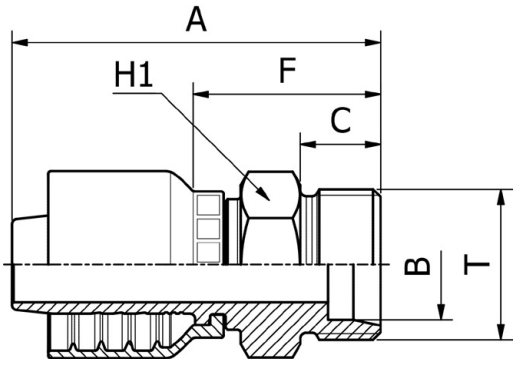
DIN STANDARD CONNECTIONS

OPF21592/OPF21593

90° METRIC
O-RING FEMALE SWEPT ELBOW 24° CONE
LIGHT DUTY
DIN 20066 / ISO 12151-2

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	E	F	H2	
OPF21593-03A12	5	- 3	3/16"	M 12X1,5	6.0	3.0	47.5	0.7	30.0	26.0	14.0	
OPF21592-04A12	6	- 4	1/4"	M 12X1,5	6.0	3.0	56.0	2.2	32.5	28.5	17.0	
OPF21593-04A14	6	- 4	1/4"	M 14X1,5	8.0	4.0	57.0	1.3	31.5	29.5	17.0	
OPF21593-04A16	6	- 4	1/4"	M 16X1,5	10.0	6.0	57.0	1.8	32.0	29.5	19.0	
OPF21593-04A18	6	- 4	1/4"	M 18X1,5	12.0	7.0	57.0	2.0	33.0	29.5	22.0	
OPF21593-05A16	8	- 5	5/16"	M 16X1,5	10.0	6.0	60.0	1.8	32.5	32.0	19.0	
OPF21593-05A18	8	- 5	5/16"	M 18X1,5	12.0	7.0	60.0	2.0	32.5	32.0	22.0	
OPF21592-06A16	10	- 6	3/8"	M 16X1,5	10.0	6.0	65.0	3.0	40.0	35.5	19.0	
OPF21593-06A18	10	- 6	3/8"	M 18X1,5	12.0	7.0	66.0	2.0	33.5	36.5	22.0	
OPF21593-06A22	10	- 6	3/8"	M 22X1,5	15.0	9.3	66.0	1.5	35.0	36.5	27.0	
OPF21592-08A18	12	- 8	1/2"	M 18X1,5	12.0	7.0	75.0	2.9	48.0	44.0	22.0	
OPF21593-08A26	12	- 8	1/2"	M 26X1,5	18.0	12.5	76.0	2.0	40.0	45.0	32.0	
OPF21593-08A22	12	- 8	1/2"	M 22X1,5	15.0	9.3	76.0	1.5	39.5	45.0	27.0	
OPF21593-10A26	16	- 10	5/8"	M 26X1,5	18.0	12.5	86.0	2.0	53.0	51.5	32.0	
OPF21593-10A30	16	- 10	5/8"	M 30X2	22.0	15.0	86.0	3.0	54.0	51.5	36.0	
OPF21593-12A30	19	- 12	3/4"	M 30X2	22.0	15.0	97.5	3.0	59.5	61.5	36.0	
OPF21593-16A36	25	- 16	1"	M 36X2	28.0	19.8	125.0	3.7	69.5	76.5	41.0	

OPF21592: THRUST WIRE NUT / OPF21593: SLIP-ON NUT

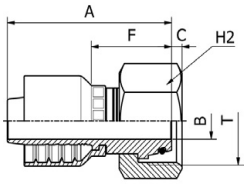


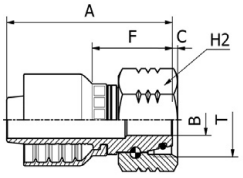
DIN STANDARD CONNECTIONS

OPF11210

METRIC
MALE 24° CONE SEAT HEAVY DUTY
DIN 20066 / ISO 12151-2

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	F	H1		
OPF11210-04A16	6	- 4	1/4"	M 16X1,5	8.0	5.5	53.0	12.0	25.5	17.0		
OPF11210-04A18	6	- 4	1/4"	M 18X1,5	10.0	6.0	54.0	12.0	26.5	19.0		
OPF11210-04A20	6	- 4	1/4"	M 20X1,5	12.0	7.0	56.5	12.0	29.0	22.0		
OPF11210-05A20	8	- 5	5/16"	M 20X1,5	12.0	7.0	57.0	12.0	29.0	22.0		
OPF11210-06A18	10	- 6	3/8"	M 18X1,5	10.0	7.0	56.5	12.0	27.0	19.0		
OPF11210-06A20	10	- 6	3/8"	M 20X1,5	12.0	7.0	58.5	12.0	29.0	22.0		
OPF11210-06A22	10	- 6	3/8"	M 22X1,5	14.0	8.0	60.5	14.0	31.0	22.0		
OPF11210-08A24	12	- 8	1/2"	M 24X1,5	16.0	9.3	62.5	14.0	31.5	24.0		
OPF11210-10A30	16	- 10	5/8"	M 30X2	20.0	15.0	70.0	16.0	35.5	30.0		
OPF11210-12A30	19	- 12	3/4"	M 30X2	20.0	15.0	73.5	16.0	37.0	30.0		
OPF11210-12A36	19	- 12	3/4"	M 36X2	25.0	19.8	77.5	18.0	41.0	36.0		
OPF11210-16A36	25	- 16	1"	M 36X2	25.0	19.8	90.5	18.0	42.5	36.0		
OPF11210-16A42	25	- 16	1"	M 42X2	30.0	25.0	92.5	20.0	44.5	46.0		





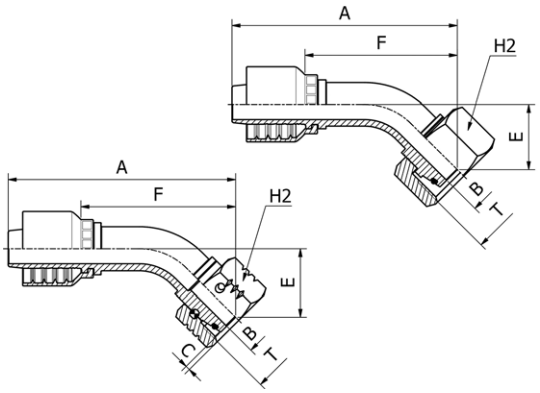
DIN STANDARD CONNECTIONS

OPF21612/OPF21613

METRIC
O-RING FEMALE 24° CONE HEAVY DUTY
DIN 20066 / ISO 12151-2

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	F	H2		
OPF21613-03A16	5	- 3	3/16"	M 16X1,5	8.0	3.0	43.0	3.4	21.5	19.0		
OPF21613-04A14	6	- 4	1/4"	M 14X1,5	6.0	3.0	51.0	1.9	23.5	17.0		
OPF21613-04A16	6	- 4	1/4"	M 16X1,5	8.0	4.0	49.5	3.4	22.0	19.0		
OPF21613-04A18	6	- 4	1/4"	M 18X1,5	10.0	4.0	55.5	2.5	28.0	22.0		
OPF21613-04A20	6	- 4	1/4"	M 20X1,5	12.0	7.0	53.5	2.0	26.0	24.0		
OPF21613-05A18	8	- 5	5/16"	M 18X1,5	10.0	5.5	56.0	2.5	28.0	22.0		
OPF21613-05A20	8	- 5	5/16"	M 20X1,5	12.0	5.5	53.0	2.0	25.0	24.0		
OPF21613-06A20	10	- 6	3/8"	M 20X1,5	12.0	7.0	54.5	2.0	25.5	24.0		
OPF21613-06A22	10	- 6	3/8"	M 22X1,5	14.0	7.0	62.0	3.0	32.5	27.0		
OPF21613-08A24	12	- 8	1/2"	M 24X1,5	16.0	9.3	58.0	4.0	26.5	30.0		
OPF21613-10A30	16	- 10	5/8"	M 30X2	20.0	12.5	65.0	3.5	30.5	36.0		
OPF21612-12A30	19	- 12	3/4"	M 30X2	20.0	12.5	70.0	2.2	33.5	36.0		
OPF21613-12A36	19	- 12	3/4"	M 36X2	25.0	15.0	70.5	4.5	34.0	41.0		
OPF21612-16A36	25	- 16	1"	M 36X2	25.0	15.0	83.5	1.7	35.5	41.0		
OPF21613-16A42	25	- 16	1"	M 42X2	30.0	19.8	83.5	6.3	35.5	50.0		

OPF21612: THRUST WIRE NUT / OPF21613: SLIP-ON NUT



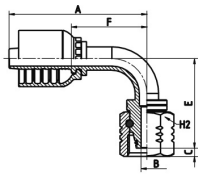
DIN STANDARD CONNECTIONS

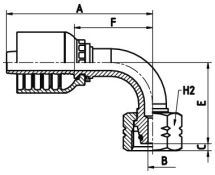
OPF21642/OPF21643

45° METRIC
O-RING FEMALE SWEPT ELBOW 24° CONE
HEAVY DUTY
DIN 20066 / ISO 12151-2

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	E	F	H2	
OPF21643-04A16	6	- 4	1/4"	M 16X1,5	8.0	4.0	64.0	3.4	15.0	36.5	19.0	
OPF21643-04A18	6	- 4	1/4"	M 18X1,5	10.0	4.0	65.0	2.5	16.5	37.5	22.0	
OPF21643-05A20	8	- 5	5/16"	M 20X1,5	12.0	5.5	70.0	2.0	18.5	42.0	24.0	
OPF21643-06A20	10	- 6	3/8"	M 20X1,5	12.0	7.0	73.5	2.0	17.0	44.0	24.0	
OPF21643-06A22	10	- 6	3/8"	M 22X1,5	14.0	7.0	75.0	3.0	18.5	45.5	27.0	
OPF21643-08A24	12	- 8	1/2"	M 24X1,5	16.0	9.3	83.5	4.0	20.0	52.5	30.0	
OPF21643-10A30	16	- 10	5/8"	M 30X2	20.0	12.5	99.5	3.5	29.5	65.5	36.0	
OPF21642-12A30	19	- 12	3/4"	M 30X2	20.0	12.5	113.0	2.2	34.0	76.5	36.0	
OPF21643-12A36	19	- 12	3/4"	M 36X2	25.0	15.0	111.5	4.5	32.5	75.0	41.0	
OPF21643-16A42	25	- 16	1"	M 42X2	30.0	19.8	138.0	6.3	35.5	90.0	50.0	

OPF21642: THRUST WIRE NUT / OPF21643: SLIP-ON NUT





DIN STANDARD CONNECTIONS

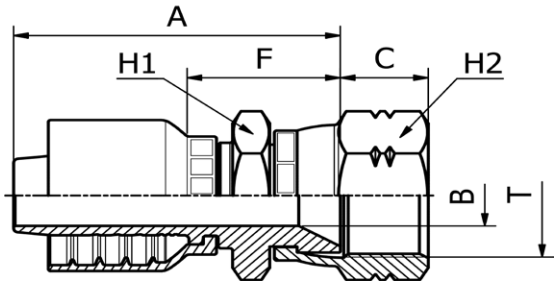
OPF21692/OPF21693

90° METRIC
O-RING FEMALE SWEPT ELBOW 24° CONE
HEAVY DUTY
DIN 20066 / ISO 12151-2

PART. REF.	HOSE BORE			Thread	Pipe	DIMENSIONS mm						
	DN	Dash	inch	T	mm	B	A	C	E	F	H2	
OPF21693-04A16	6	- 4	1/4"	M 16X1,5	8.0	4.0	57.0	3.4	29.5	29.5	19.0	
OPF21693-04A18	6	- 4	1/4"	M 18X1,5	10.0	4.0	57.0	2.5	31.0	29.5	22.0	
OPF21693-04A20	6	- 4	1/4"	M 20X1,5	12.0	5.5	57.0	2.0	34.5	29.5	24.0	
OPF21693-05A20	8	- 5	5/16"	M 20X1,5	12.0	5.5	60.0	2.0	34.0	32.0	24.0	
OPF21693-06A20	10	- 6	3/8"	M 20X1,5	12.0	7.0	66.0	2.0	35.0	36.5	24.0	
OPF21693-06A22	10	- 6	3/8"	M 22X1,5	14.0	7.0	66.0	3.0	37.0	36.5	27.0	
OPF21693-06A24	10	- 6	3/8"	M 24X1,5	16.0	9.3	66.0	4.0	36.0	36.5	30.0	
OPF21693-08A24	12	- 8	1/2"	M 24X1,5	16.0	9.3	76.0	4.0	40.5	45.0	30.0	
OPF21693-10A30	16	- 10	5/8"	M 30X2	20.0	12.5	86.0	3.5	57.5	51.5	36.0	
OPF21692-12A30	19	- 12	3/4"	M 30X2	20.0	12.5	98.0	2.2	67.5	61.5	36.0	
OPF21693-12A36	19	- 12	3/4"	M 36X2	25.0	15.0	97.5	4.5	64.5	61.5	41.0	
OPF21692-16A36	25	- 16	1"	M 36X2	25.0	15.0	127.5	1.7	86.0	79.5	41.0	
OPF21693-16A42	25	- 16	1"	M 42X2	30.0	19.8	127.5	6.3	74.5	79.0	50.0	

OPF21692: THRUST WIRE NUT / OPF21693: SLIP-ON NUT

JIS STANDARD CONNECTIONS

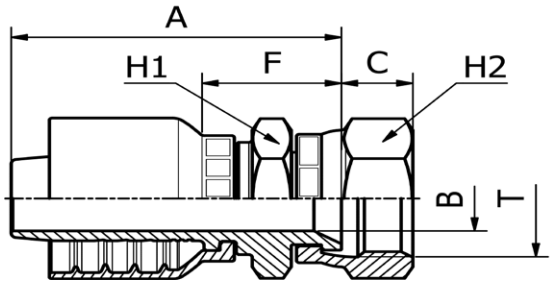


OPF24011

JIS METRIC
FEMALE (KOMATSU)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm					
	DN	Dash	inch	T		B	A	C	F	H1	H2
OPF24011-04A14	6	- 4	1/4"	M 14X1,5		4.0	50.5	10.5	23.0	19.0	19.0
OPF24011-06A14	10	- 6	3/8"	M 14X1,5		4.0	53.0	10.5	23.5	19.0	19.0
OPF24011-06A18	10	- 6	3/8"	M 18X1,5		7.0	53.0	11.5	23.5	24.0	24.0
OPF24011-08A22	12	- 8	1/2"	M 22X1,5		9.3	56.0	13.0	25.0	27.0	27.0
OPF24011-10A24	16	- 10	5/8"	M 24X1,5		12.5	61.0	15.1	26.5	32.0	32.0
OPF24011-12A30	19	- 12	3/4"	M 30X1,5		15.0	68.0	18.3	31.5	36.0	36.0
OPF24011-16A33	25	- 16	1"	M 33X1,5		19.8	81.5	21.3	33.5	41.0	41.0

JIS STANDARD CONNECTIONS

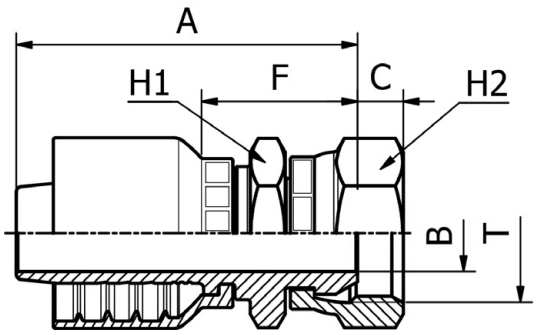


OPF23811

JIS BSP
FEMALE 60° CONE SEAT (TOYOTA)
JIS B 8363
(CRIMPED-BACK NUT)

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	F	H1	H2	
OPF23811-04A04	6	- 4	1/4"	1/4" - 19		4.0	46.0	8.3	18.5	19.0	19.0	
OPF23811-06A06	10	- 6	3/8"	3/8" - 19		7.0	52.5	10.0	23.0	22.0	22.0	
OPF23811-08A08	12	- 8	1/2"	1/2" - 14		9.3	53.0	11.5	22.0	27.0	27.0	
OPF23811-12A12	19	- 12	3/4"	3/4" - 14		15.0	62.5	13.5	26.0	32.0	32.0	
OPF23811-16A16	25	- 16	1"	1" - 11		19.8	78.5	14.5	30.5	38.0	38.0	

JIS STANDARD CONNECTIONS

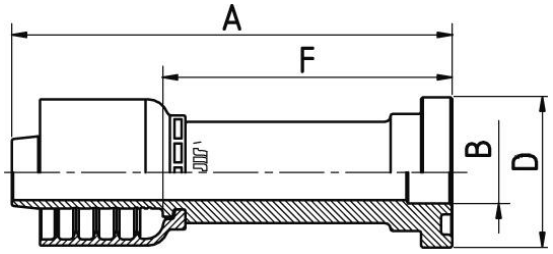


OPF20711

JIS BSP
FEMALE 60° CONE (NISSAN)
JIS B 8363

PART. REF.	HOSE BORE			Thread		DIMENSIONS mm						
	DN	Dash	inch	T		B	A	C	F	H1	H2	
OPF20711-12A12	19	- 12	3/4"	3/4" - 14		15.0	66.5	8.9	30.0	32.0	32.0	

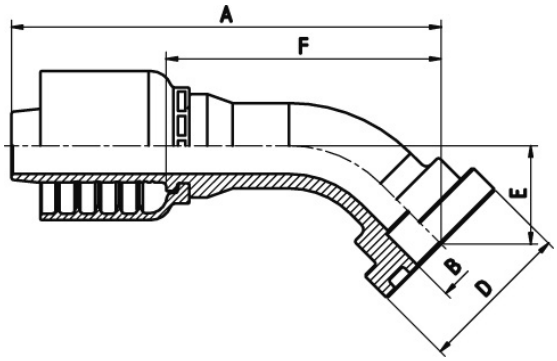
ORIGINAL EQUIPMENT CONNECTIONS



OPF24111

STRAIGHT KOMATSU FLANGE

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	F			
OPF24111-10A10	16	- 10	5/8"	5/8"		14.0	100.0	34.0	65.5			

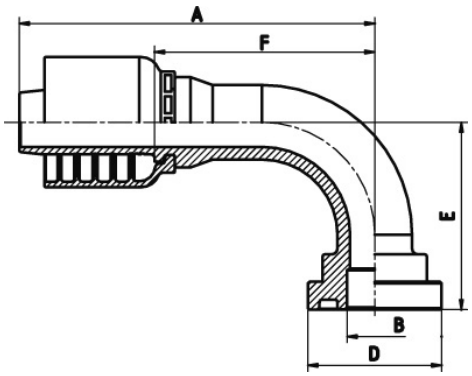


ORIGINAL EQUIPMENT CONNECTIONS

OPF24141

45° KOMATSU FLANGE

PART. REF.		HOSE BORE			Flange		DIMENSIONS mm						
		DN	Dash	inch	inch		B	A	D	E	F		
OPF24141-10A10		16	- 10	5/8"	5/8"		14.0	95.0	34.0	22.0	61.0		



ORIGINAL EQUIPMENT CONNECTIONS

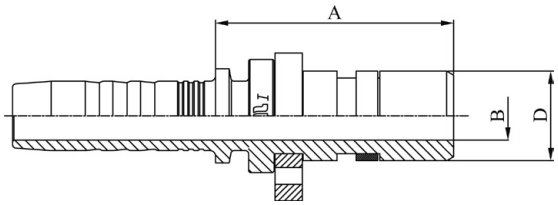
OPF24191

90° KOMATSU FLANGE

PART. REF.	HOSE BORE			Flange		DIMENSIONS mm						
	DN	Dash	inch	inch		B	A	D	E	F		
OPF24191-10A10	16	- 10	5/8"	5/8"		14.0	90.0	34.0	47.5	56.0		

MULTIFIT INSERT

M12H10

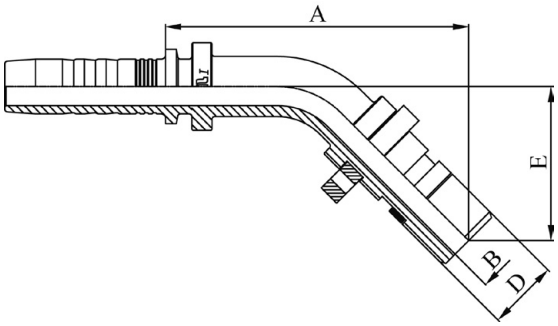


EF STRAIGHT MALE INSERT

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch	Bar		B	A	D				
M12H10-04-04	6	- 4	1/4"	350.0		4.0	30.0	10.0				
M12H10-04-06	6	- 4	1/4"	350.0		7.0	34.0	13.0				
M12H10-05-06	8	- 5	5/16"	350.0		7.0	34.0	13.0				
M12H10-06-04	10	- 6	3/8"	350.0		4.0	30.5	10.0				
M12H10-06-06	10	- 6	3/8"	350.0		7.0	34.5	13.0				
M12H10-06-08	10	- 6	3/8"	350.0		9.3	34.5	16.0				
M12H10-08-06	12	- 8	1/2"	350.0		7.0	35.0	13.0				
M12H10-08-08	12	- 8	1/2"	350.0		9.3	35.0	16.0				
M12H10-10-08	16	- 10	5/8"	350.0		9.3	35.0	16.0				
M12H10-10-12	16	- 10	5/8"	280.0		15.0	44.5	23.0				
M12H10-12-12	19	- 12	3/4"	280.0		15.0	44.5	23.0				

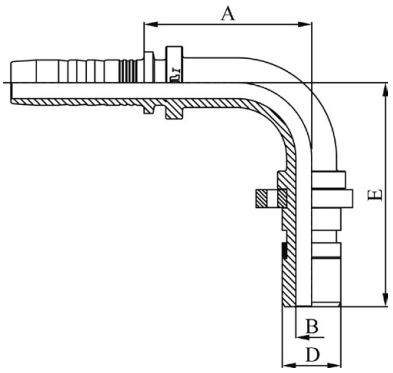
MULTIFIT INSERT

M12H40



EF 45° ELBOW MALE INSERT

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch	Bar		B	A	D	E			
M12H40-04-04	6	- 4	1/4"	350.0		4.0	46.0	10.0	23.5			
M12H40-04-06	6	- 4	1/4"	350.0		7.0	52.0	13.0	27.0			
M12H40-05-06	8	- 5	5/16"	350.0		7.0	53.0	13.0	27.5			
M12H40-06-04	10	- 6	3/8"	350.0		4.0	47.0	10.0	23.5			
M12H40-06-06	10	- 6	3/8"	350.0		7.0	55.5	13.0	28.0			
M12H40-08-08	12	- 8	1/2"	350.0		9.3	61.5	16.0	30.0			
M12H40-10-12	16	- 10	5/8"	280.0		15.0	79.0	23.0	41.0			
M12H40-10-08	16	- 10	5/8"	350.0		9.3	65.0	16.0	30.0			
M12H40-12-12	19	- 12	3/4"	280.0		15.0	85.5	23.0	42.5			



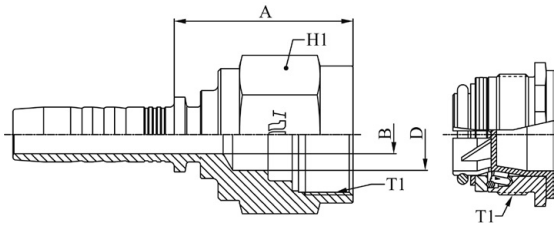
MULTIFIT INSERT

M12H90

EF 90° ELBOW MALE INSERT

PART. REF.	HOSE BORE					DIMENSIONS mm						
	DN	Dash	inch	Bar		B	A	D	E			
M12H90-04-04	6	- 4	1/4"	350.0		4.0	30.0	10.0	40.0			
M12H90-04-06	6	- 4	1/4"	350.0		7.0	32.0	13.0	45.0			
M12H90-05-06	8	- 5	5/16"	350.0		7.0	33.5	13.0	46.5			
M12H90-06-04	10	- 6	3/8"	350.0		4.0	30.5	10.0	40.0			
M12H90-06-06	10	- 6	3/8"	350.0		7.0	37.0	13.0	49.5			
M12H90-08-06	12	- 8	1/2"	350.0		7.0	37.5	13.0	49.5			
M12H90-08-08	12	- 8	1/2"	350.0		9.3	44.0	16.0	55.0			
M12H90-10-08	16	- 10	5/8"	350.0		9.3	47.0	16.0	55.0			
M12H90-10-12	16	- 10	5/8"	280.0		15.0	55.0	23.0	74.5			
M12H90-12-12	19	- 12	3/4"	280.0		15.0	62.5	23.0	79.0			

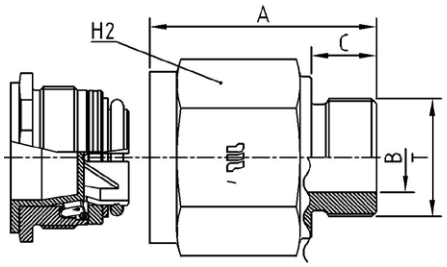
MULTIFIT INSERT



M22H10

EF STRAIGHT FEMALE INSERT

PART. REF.	HOSE BORE			Thread	W.P.	DIMENSIONS mm						
	DN	Dash	inch	T	Bar	B	A	D	H1			
M22H10-04-04	6	- 4	1/4"	M 18X1	350.0	4.0	30.0	10.0	22.0			
M22H10-06-06	10	- 6	3/8"	M 22X1	350.0	7.0	33.5	13.0	25.0			
M22H10-08-08	12	- 8	1/2"	M 25X1	350.0	9.3	34.0	16.0	28.0			
M22H10-10-08	16	- 10	5/8"	M 25X1	350.0	12.5	34.0	23.0	28.0			
M22H10-10-12	16	- 10	5/8"	M 33X1,5	280.0	12.5	45.5	23.0	38.0			
M22H10-12-12	19	- 12	3/4"	M 33X1,5	280.0	15.0	46.5	23.0	38.0			

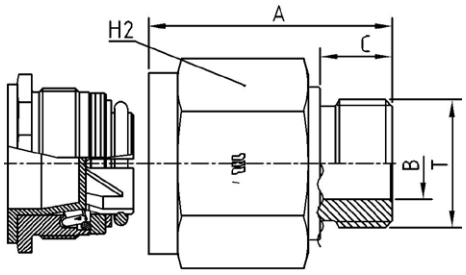


ADAPTORS

A52032H

ADAPTOR BSP
MALE O-RING BOSS TYPE
ISO 1179
EF FEMALE

PART. REF.	HOSE BORE			Thread	W.P.	DIMENSIONS mm						
	DN	Dash	inch	T	Bar	B	A	C	D	H2		
A52032H-04-04	6	- 4	1/4"	1/4" - 19	350.0	7.5	34.0	11.2	10.0	22.0		
A52032H-06-04	6	- 4	1/4"	3/8" - 19	350.0	9.0	34.0	11.2	10.0	22.0		
A52032H-06-06	10	- 6	3/8"	3/8" - 19	350.0	9.9	36.5	11.2	13.0	25.0		
A52032H-08-06	10	- 6	3/8"	1/2" - 14	350.0	12.3	39.5	14.5	13.0	27.0		
A52032H-08-08	12	- 8	1/2"	1/2" - 14	350.0	12.3	40.0	14.5	16.0	28.0		
A52032H-12-12	19	- 12	3/4"	3/4" - 14	280.0	15.5	50.5	14.5	23.0	38.0		
A52032H-16-12	19	- 12	3/4"	1" - 11	280.0	20.0	53.5	18.6	23.0	46.0		

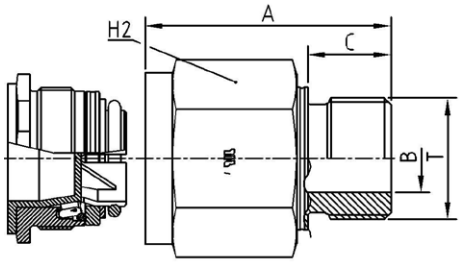


ADAPTORS

A52302H

ADAPTOR SAE
O-RING BOSS MALE
ISO 11926
EF FEMALE

PART. REF.	HOSE BORE			Thread	W.P.	DIMENSIONS mm						
	DN	Dash	inch	T	Bar	B	A	C	D	H2		
A52302H-06-04	6	- 4	1/4"	9/16" - 18	350.0	7.0	32.5	9.9	10.0	22.0		
A52302H-06-06	10	- 6	3/8"	9/16" - 18	350.0	7.0	36.0	9.9	13.0	25.0		
A52302H-08-06	10	- 6	3/8"	3/4" - 16	350.0	9.3	37.0	11.1	13.0	25.0		
A52302H-08-08	12	- 8	1/2"	3/4" - 16	350.0	9.3	37.0	11.1	16.0	28.0		
A52302H-10-08	12	- 8	1/2"	7/8" - 14	350.0	12.5	38.5	12.7	16.0	28.0		
A52302H-10-12	19	- 12	3/4"	7/8" - 14	280.0	12.5	49.5	12.7	23.0	38.0		
A52302H-12-12	19	- 12	3/4"	1.1/16" - 12	280.0	15.0	51.0	15.1	23.0	38.0		

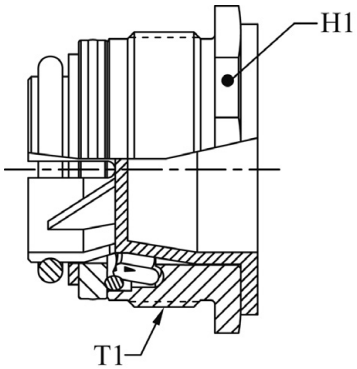


ADAPTORS

A52192H

ADAPTOR METRIC MALE ISO 6149 EF FEMALE

PART. REF.	HOSE BORE			Thread	W.P.	DIMENSIONS mm						
	DN	Dash	inch	T	Bar	B	A	C	D	H2		
A52192H-14-04	6	- 4	1/4"	M 14X1,5	350.0	6.0	34.0	11.0	10.0	22.0		
A52192H-16-04	6	- 4	1/4"	M 16X1,5	350.0	7.0	35.0	12.5	10.0	22.0		
A52192H-18-06	10	- 6	3/8"	M 18X1,5	350.0	9.0	40.0	14.0	13.0	25.0		
A52192H-22-06	10	- 6	3/8"	M 22X1,5	350.0	12.0	40.0	15.0	13.0	27.0		
A52192H-22-08	12	- 8	1/2"	M 22X1,5	350.0	12.0	40.0	15.0	16.0	28.0		
A52192H-27-08	12	- 8	1/2"	M 27X2	350.0	15.0	43.0	18.5	16.0	32.0		
A52192H-27-12	19	- 12	3/4"	M 27X2	280.0	15.0	55.0	18.5	23.0	38.0		
A52192H-33-12	19	- 12	3/4"	M 33X2	280.0	20.0	54.0	18.5	23.0	41.0		

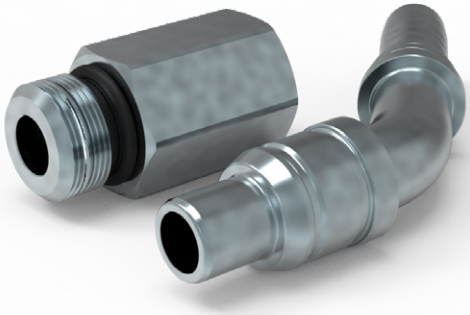


ADAPTORS

O82H10

CARTRIDGE EF

PART. REF.	HOSE BORE			Thread	W.P.	DIMENSIONS mm						
	DN	Dash	inch	T	Bar	D	H1					
O82H10-04	6	- 4	1/4"	M 18X1	350.0	10.0	19.0					
O82H10-06	10	- 6	3/8"	M 22X1	350.0	13.0	23.0					
O82H10-08	12	- 8	1/2"	M 25X1	350.0	16.0	26.0					
O82H10-12	19	- 12	3/4"	M 33X1,5	280.0	23.0	34.0					



FASTFIT TYPE
PUSH-TO-CONNECT

TECHNICAL DATA

SIZE			WORKING PRESSURE (Dynamic)	
DN	Dash	inch	MPa	PSI
10	-06	3/8"	42	6,090
12	-08	1/2"	42	6,090
16	-10	5/8"	42	6,090
19	-12	3/4"	42	6,090
25	-16	1"	42	6,090
31	-20	1.1/4"	42	6,090

PRODUCT DESCRIPTION

- Push-to-connect design
- No assembly tools required
- Low connection effort
- Reduced assembly time even in hard-to-reach areas
- Disconnection by unscrewing adaptor

MATERIAL

Adaptor and Insert in steel, with some hardened areas in correspondence to the most stressed points. Seals in NBR. Other materials (VITON, EPDM or any others) on request

WORKING TEMPERATURE

-22°F up to +230°F (-30°C up to +110°C)
For different temperature range, the coupling can be assembled with specific seals

SAFETY FACTOR

4:1 for dynamic pressures

IMPULSE PRESSURES

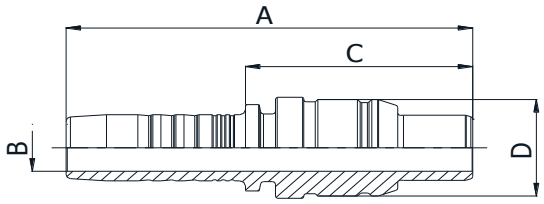
500,000 cycles at 120% of the rated one (freq. 1Hz)

TEST SPECIFICATIONS

ISO 18879

MULTIFIT INSERT

M13H10

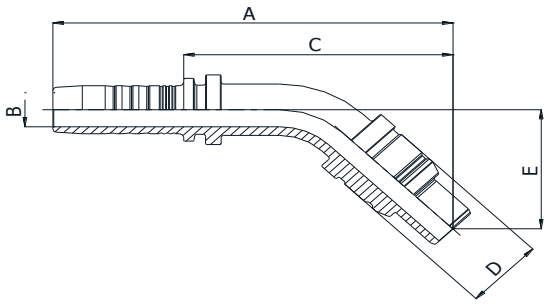


FAST-FIT STRAIGHT MALE INSERT

SIZE			PART REF.	SIZE			W.P	DIMENSIONS mm						
DN	Dash	inch		DN	Dash	inch	MPa	A	B	C	D			
10	-06	3/8"	M13H10-04-06	6	-04	1/4"	42	63.0	4.0	35.5	14.8			
10	-06	3/8"	M13H10-06-06	10	-06	3/8"	42	66.5	7.0	37.1	14.8			
12	-08	1/2"	M13H10-08-08	12	-08	1/2"	42	70.5	9.3	39.4	19.1			
16	-10	5/8"	M13H10-10-10	16	-10	5/8"	38	74.8	12.5	40.5	21.5			
19	-12	3/4"	M13H10-12-12	19	-12	3/4"	38	80.5	15.0	44.0	26.1			
25	-16	1"	M13H10-16-16	25	-16	1"	32	96.0	19.8	47.8	31.3			

MULTIFIT INSERT

M13H40

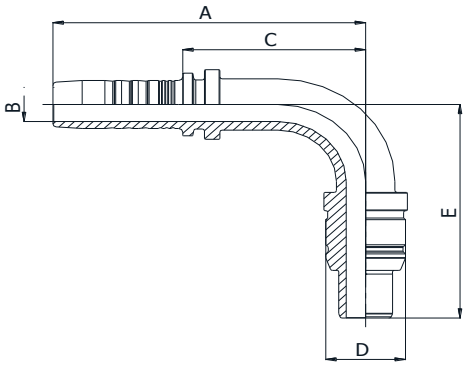


FAST-FIT 45° ELBOW MALE INSERT

SIZE			PART REF.	SIZE			W.P	DIMENSIONS mm						
DN	Dash	inch		DN	Dash	inch	MPa	A	B	C	D	E		
10	-06	3/8"	M13H40-04-06	6	-04	1/4"	42	77.6	4.0	50.1	14.8	27.0		
10	-06	3/8"	M13H40-06-06	10	-06	3/8"	42	86.1	7.0	56.7	14.8	29.4		
12	-08	1/2"	M13H40-08-08	12	-08	1/2"	42	95.1	9.3	64.0	19.1	32.5		
19	-12	3/4"	M13H40-12-12	19	-12	3/4"	38	120.4	15.0	83.9	26.1	40.7		
25	-16	1"	M13H40-16-16	25	-16	1"	32	152.3	19.8	104.1	31.3	50.2		

MULTIFIT INSERT

M13H90

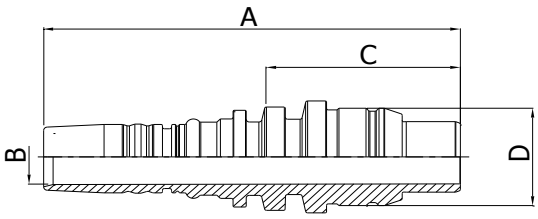


FAST-FIT 90° ELBOW MALE INSERT

SIZE			PART REF.	SIZE			W.P	DIMENSIONS mm						
DN	Dash	inch		DN	Dash	inch	MPa	A	B	C	D	E		
10	-06	3/8"	M13H90-04-06	6	-04	1/4"	42	57.6	4.0	30.1	14.8	45.2		
10	-06	3/8"	M13H90-06-06	10	-06	3/8"	42	66.4	7.0	37.0	14.8	51.2		
12	-08	1/2"	M13H90-08-08	12	-08	1/2"	42	74.9	9.3	43.8	19.1	58.3		
19	-12	3/4"	M13H90-12-12	19	-12	3/4"	38	99.0	15.0	62.5	26.1	76.9		
25	-16	1"	M13H90-16-16	25	-16	1"	32	125.5	19.8	77.3	31.3	94.4		

INTERLOCK PLUS INSERT

M33H10

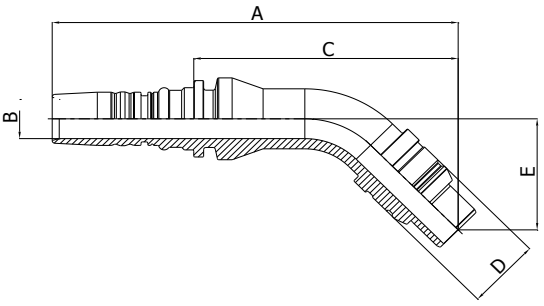


FAST-FIT STRAIGHT MALE INSERT

SIZE			PART REF.	SIZE			W.P	DIMENSIONS mm						
DN	Dash	inch		DN	Dash	inch	MPa	A	B	C	D			
19	-12	3/4"	M33H10-12-12	19	-12	3/4"	42	96.6	14.5	46.4	26.1			
25	-16	1"	M33H10-16-16	25	-16	1"	42	112.0	19.5	50.3	31.3			

INTERLOCK PLUS INSERT

M33H40

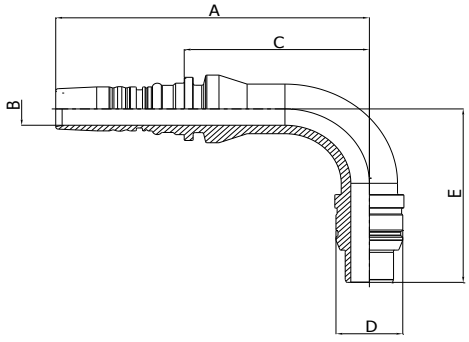


FAST-FIT 45° ELBOW MALE INSERT

SIZE			PART REF.	SIZE			W.P	DIMENSIONS mm						
DN	Dash	inch		DN	Dash	inch	MPa	A	B	C	D	E		
19	-12	3/4"	M33H40-12-12	19	-12	3/4"	42	143.9	14.5	93.8	26.1	40.7		
25	-16	1"	M33H40-16-16	25	-16	1"	42	174.8	19.5	113.1	31.3	50.2		

INTERLOCK PLUS INSERT

M33H90

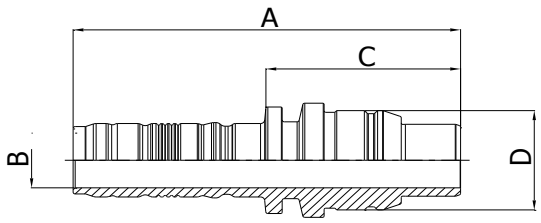


FAST-FIT 90° ELBOW MALE INSERT

SIZE			PART REF.	SIZE			W.P	DIMENSIONS mm						
DN	Dash	inch		DN	Dash	inch	MPa	A	B	C	D	E		
19	-12	3/4"	M33H90-12-12	19	-12	3/4"	42	122.6	14.5	72.4	26.1	76.9		
25	-16	1"	M33H90-16-16	25	-16	1"	42	148.0	19.5	86.3	31.3	94.4		

SPIRALFIT INSERT

M73H10

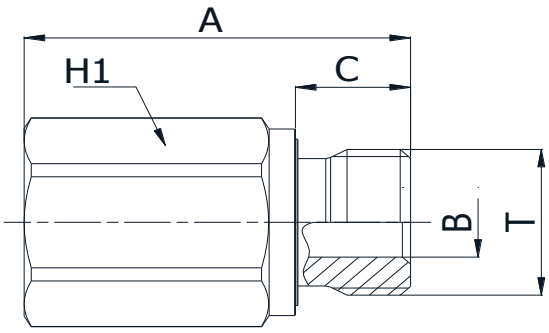


FAST-FIT STRAIGHT MALE INSERT

SIZE			PART REF.	SIZE			W.P	DIMENSIONS mm						
DN	Dash	inch		DN	Dash	inch	MPa	A	B	C	D			
19	-12	3/4"	M73H10-12-12	19	-12	3/4"	42	93.4	14.5	46.9	26.1			
25	-16	1"	M73H10-16-16	25	-16	1"	42	107.5	19.5	51.3	31.3			

ADAPTORS

A52013H

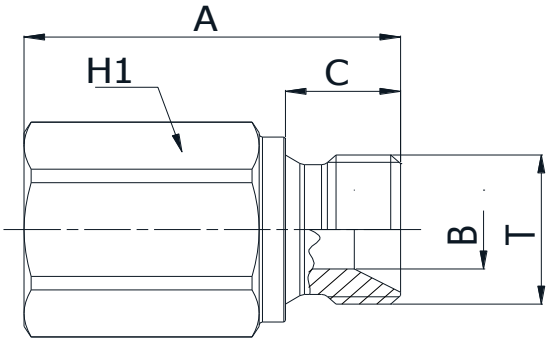


BSP MALE OR BOSS TYPE TO ISO 1179- 2

SIZE			PART. REF.	Thread	W.P	DIMENSIONS mm						
DN	Dash	inch		T	MPa	A	B	C	H1			
10	-06	3/8"	A52013H-04-06	1/4"-19	42	45.0	5.0	12.0	19			
10	-06	3/8"	A52013H-06-06	3/8"-19	42	44.5	8.0	12.0	22			
12	-08	1/2"	A52013H-08-08	1/2"-14	42	47.0	10.0	14.0	27			
19	-12	3/4"	A52013H-12-12	3/4"-14	42	53.0	16.0	16.0	32			
25	-16	1"	A52013H-16-16	1"-11	42	60.0	20.0	18.0	41			

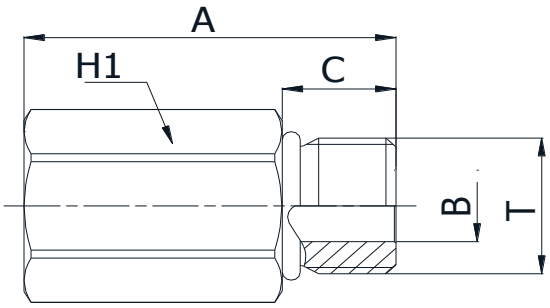
ADAPTORS

A52053H



BSP MALE 60° CONE (ISO 8434-6 / BS5200)

SIZE			PART. REF.	Thread	W.P	DIMENSIONS mm						
DN	Dash	inch		T	MPa	A	B	C	H1			
12	-08	1/2"	A52053H-08-08	1/2"-14	42	45.8	11.0	14.0	27			

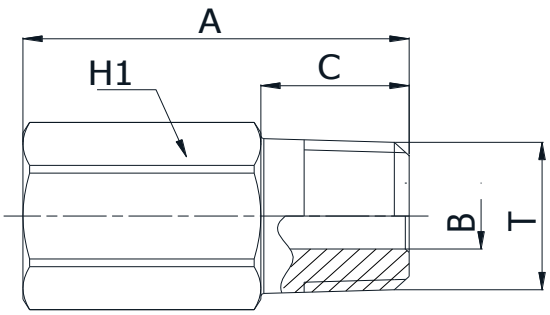


ADAPTORS

A52323H

SAE MALE
OR BOSS TYPE
TO SAE J1926-2

SIZE			PART. REF.	Thread	W.P	DIMENSIONS mm						
DN	Dash	inch		T	MPa	A	B	C	H1			
10	-06	3/8"	A52323H-04-06	7/16"-20	42	42.2	4.5	11.0	19			
10	-06	3/8"	A52323H-06-06	9/16"-18	42	42.4	7.5	12.0	19			
12	-08	1/2"	A52323H-08-08	3/4"-16	42	45.8	10.0	14.0	24			
16	-10	5/8"	A52323H-10-10	7/8"-14	42	49.2	12.5	16.0	27			
19	-12	3/4"	A52323H-12-12	1.1/16"-12	42	53.5	15.5	18.5	32			
25	-16	1"	A52323H-16-16	1.5/16"-12	42	56.0	20.5	18.5	38			

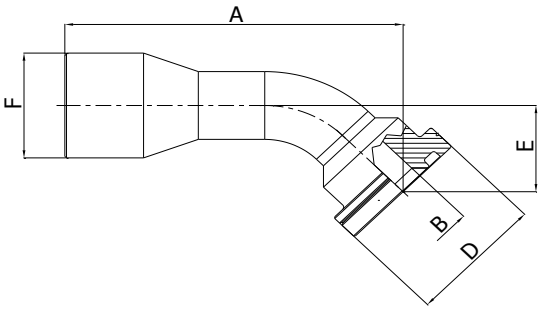


ADAPTORS

A52283H

STRAIGHT ADAPTOR
NPTF MALE
TO ASME B1.20.3

SIZE			PART. REF.	Thread	W.P	DIMENSIONS mm						
DN	Dash	inch		T	MPa	A	B	C	H1			
10	-06	3/8"	A52283H-04-06	1/4"-18	42	44.7	6.0	14.5	19			
10	-06	3/8"	A52283H-06-06	3/8"-18	42	43.7	8.0	14.5	19			
12	-08	1/2"	A52283H-08-08	1/2"-14	42	50.0	9.5	19.2	24			
19	-12	3/4"	A52283H-12-12	3/4"-14	42	54.5	15.0	19.2	32			
25	-16	1"	A52283H-16-16	1"-11.5	42	62.0	19.5	24.2	38			

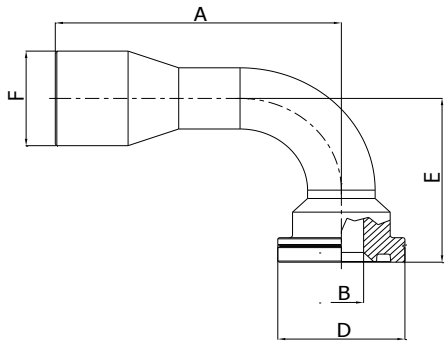


ADAPTORS

A54363H

45° ISO / SAE CODE 62 FLANGE
SAE J516 / ISO 12151-3

SIZE			PART. REF.	FLANGE	W.P	DIMENSIONS mm						
DN	Dash	inch		inch	MPa	A	B	D	E	F		
12	-08	1/2"	A54363H-08-08	1/2"	42	82.0	9.3	31.8	21.9	25.0		
19	-12	3/4"	A54363H-12-12	3/4"	42	101.8	14.5	41.4	28.0	34.0		
25	-16	1"	A54363H-16-16	1"	42	125.2	19.5	47.7	37.9	41.0		
31	-20	1-1/4"	A54363H-20-20	1-1/4"	42	136.1	25.0	54.2	35.6	55.0		

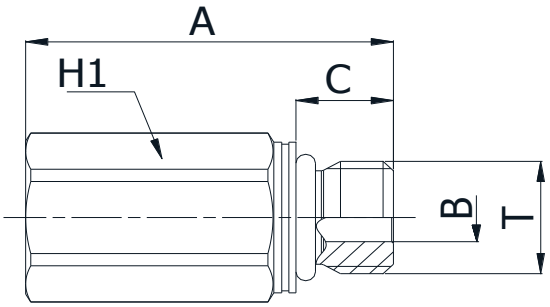


ADAPTORS

A57363H

90° ISO / SAE CODE 62 FLANGE
SAE J516 / ISO 12151-3

SIZE			PART. REF.	FLANGE	W.P	DIMENSIONS mm						
DN	Dash	inch		inch	MPa	A	B	D	E	F		
12	-08	1/2"	A57363H-08-08	1/2"	42	74.2	9.3	31.8	45.0	25.0		
19	-12	3/4"	A57363H-12-12	3/4"	42	93.2	14.5	41.4	58.9	34.0		
25	-16	1"	A57363H-16-16	1"	42	113.6	19.5	47.7	80.0	41.0		
31	-20	1-1/4"	A57363H-20-20	1-1/4"	42	132.1	25.0	54.2	82.0	55.0		

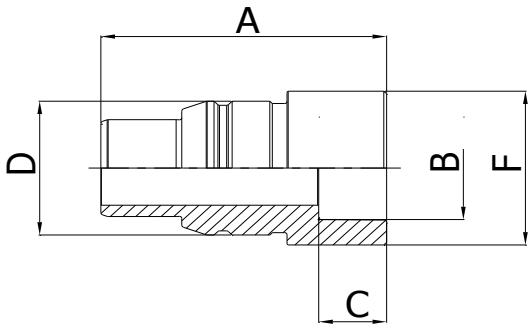


ADAPTORS

A52193H

STRAIGHT ADAPTOR METRIC MALE ISO 6149-2

SIZE			PART. REF.	Thread	W.P	DIMENSIONS mm						
DN	Dash	inch		T	MPa	A	B	C	H1			
10	-06	3/8"	A52193H-14-06	M14X1.5	42	41.5	6.0	11.0	19			
10	-06	3/8"	A52193H-18-06	M18X1.5	42	43.5	8.0	14.0	24			
12	-08	1/2"	A52193H-22-08	M22X1.5	42	45.0	10.0	15.0	27			
19	-12	3/4"	A52193H-27-12	M27X2	42	53.5	15.0	18.5	32			
25	-16	1"	A52193H-33-16	M33X2	42	57.0	20.0	18.5	41			



ADAPTORS

A523H95

BRAZING SOCKET

SIZE			PART. REF.		W.P	DIMENSIONS mm						
DN	Dash	inch			MPa	A	B	C	D	F		
19	- 12	3/4"	A523H95-12-20		42	50.5	20.1	12.0	26.1	30.0		
25	- 16	1"	A523H95-16-26		42	58.0	26.1	16.0	31.3	38.0		



DISCONNECTABLE FASTFIT TYPE PUSH-TO-CONNECT

TECHNICAL DATA

SIZE			WORKING PRESSURE (Dynamic)	
DN	Dash	inch	MPa	PSI
12	-08	1/2"	42	6,090

PRODUCT DESCRIPTION

- Push-to-connect design
- No assembly tools required
- Low connection effort
- Reduced assembly time even in hard-to-reach areas
- Disconnection by unlocking male insert by means of a standard tool

MATERIAL

Adaptor and Insert in steel, with some hardened areas in correspondence to the most stressed points. Seals in NBR. Other materials (VITON, EPDM or any others) on request

WORKING TEMPERATURE

-22°F up to +230°F (-30°C up to +110°C)
For different temperature range, the coupling can be assembled with specific seals

SAFETY FACTOR

4:1 for dynamic pressures

IMPULSE PRESSURES

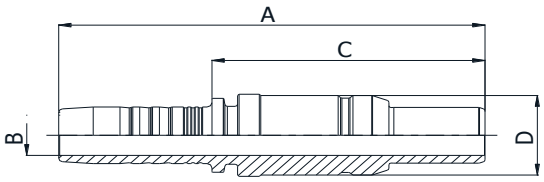
500,000 cycles at 120% of the rated one (freq. 1Hz)

TEST SPECIFICATIONS

ISO 18879

MULTIFIT INSERT

M14H10

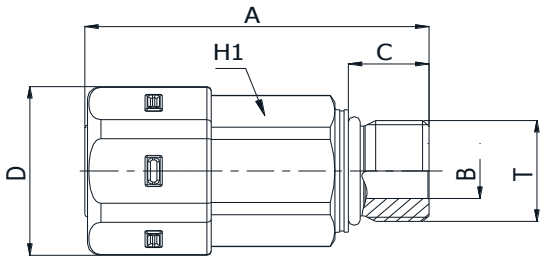


DISCONNECTABLE FAST-FIT STRAIGHT MALE INSERT

SIZE			PART REF.	SIZE			W.P	DIMENSIONS mm						
DN	Dash	inch		DN	Dash	inch	MPa	A	B	C	D			
12	-08	1/2"	M14H10-08-08	12	-08	1/2"	42	86.5	9.3	55.4	18.4			

ADAPTORS

A52194H

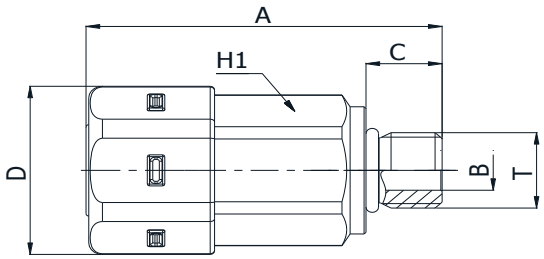


STRAIGHT ADAPTOR METRIC MALE ISO 6149-2

SIZE			PART. REF.	Thread	W.P	DIMENSIONS mm						
DN	Dash	inch		T	MPa	A	B	C	D	H1		
12	-08	1/2"	A52194H-22-08	M22X1.5	42	64.0	12.0	15.0	37.0	30.0		

ADAPTORS

A52324H



SAE MALE OR BOSS TYPE TO SAE J1926-2

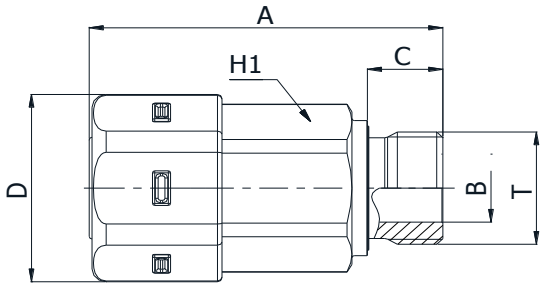
SIZE			PART. REF.	Thread	W.P	DIMENSIONS mm						
DN	Dash	inch		T	MPa	A	B	C	D	H1		
12	-08	1/2"	A52324H-08-08	3/4"-16	42	64.8	10.0	14.0	37.0	30.0		

manuli® HYDRAULICS

ADAPTORS

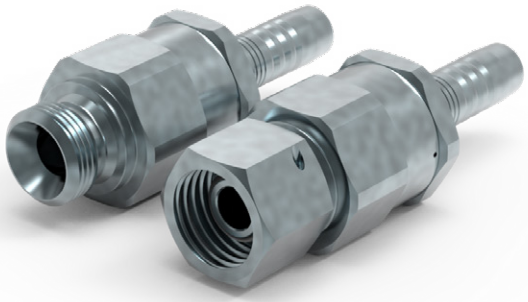
A52014H

BSP MALE OR BOSS TYPE TO ISO 1179-2



SIZE			PART. REF.	Thread	W.P	DIMENSIONS mm						
DN	Dash	inch		T	MPa	A	B	C	D	H1		
12	-08	1/2"	A52014H-08-08	1/2"-14	42	66.0	12.0	14.0	37.0	30.0		

manuli® HYDRAULICS



ROTOFIT TYPE SWIVEL JOINT

TECHNICAL DATA

SIZE			WORKING PRESSURE (Dynamic) MPa							
			MULTIFIT		INTERLOCK PLUS		SPIRALFIT		ADAPTOR	
DN	Dash	inch	MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI
6	-04	1/4"	42	6,090	-	-	-	-	-	-
10	-06	3/8"	42	6,090	-	-	-	-	42	6,090
12	-08	1/2"	42	6,090	-	-	-	-	-	-
16	-10	5/8"	42	6,090	-	-	-	-	35	5,075
19	-12	3/4"	35	5,075	42	6,090	42	6,090	35	5,075
25	-16	1"	35	5,075	42	6,090	42	6,090	35	5,075
31	-20	1.1/4"	35	5,075	42	6,090	42	6,090	35	5,075
38	-24	1.1/2"	28	4,060	42	6,090	42	6,090	35	5,075
51	-32	2"	21	3,045	-	-	-	-	-	-
63	-40	2.1/2"	14	2,030	-	-	-	-	-	-

PRODUCT DESCRIPTION

- Swivel joint purposely designed to eliminate torsional stresses due to hose twist under external torque
- Prevents connection unscrewing
- Full flow design to minimize pressure drops
- High number of balls to minimize friction

MATERIAL

Body in steel, with some hardened areas in correspondence to the most stressed points. Balls in 100Cr6 quenched and seals in NBR or Polyurethane. Other materials (VITON, EPDM or any others) on request

WORKING TEMPERATURE

-22°F up to +230°F (-30°C up to +110°C)
For different temperature range, the coupling can be assembled with specific seals

SAFETY FACTOR

4:1 for dynamic pressures

ROTATION ANGLE

Up to 40°

IMPULSE PRESSURES

500,000 cycles at 120% of the rated one (freq. 1Hz)

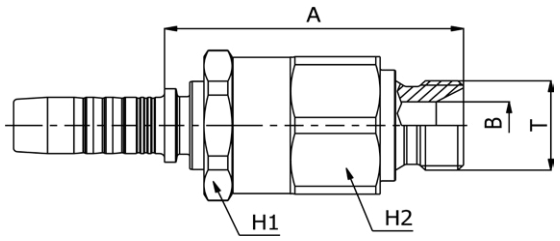
ROTATION FREQUENCY

Up to 15 alternative RPM

TEST SPECIFICATIONS

ISO 18879

BS STANDARD CONNECTIONS

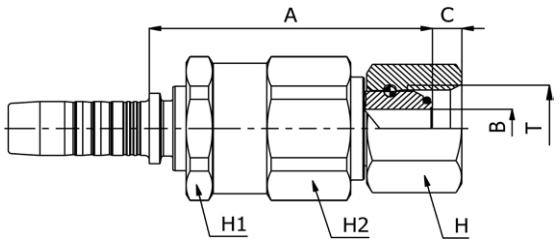


MR10510

BSP MALE
PARALLEL 60° CONE SEAT
BS5200 / ISO 8434-6

PART. REF.	SIZE			THREAD	W.P.	DIMENSIONS mm						
	DN	Dash	inch	T	MPa	A	B	H1	H2			
MR10510-04-04	6	-04	1/4"	1/4"-19	42	57.7	4.7	24	24			
MR10510-06-06	10	-06	3/8"	3/8"-19	42	58.2	8.0	27	27			
MR10510-08-08	12	-08	1/2"	1/2"-14	42	61.6	11.0	32	32			
MR10510-10-10	16	-10	5/8"	5/8"-14	35	69.3	14.3	36	36			
MR10510-12-12	19	-12	3/4"	3/4"-14	35	71.0	16.7	41	41			
MR10510-16-16	25	-16	1"	1"-11	35	83.0	22.2	50	50			
MR10510-20-20	31	-20	1.1/4"	1.1/4"-11	35	91.9	28.6	60	60			
MR10510-24-24	38	-24	1.1/2"	1.1/2"-11	28	105.1	33.3	70	70			

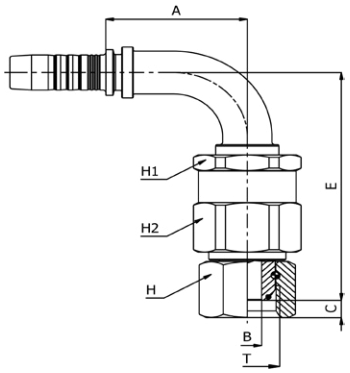
BS STANDARD CONNECTIONS



MR20812

BSP O-RING
FEMALE 60° CONE
BS5200 / ISO 12151-6

PART. REF.	SIZE			THREAD	W.P.	DIMENSIONS mm						
	DN	Dash	inch	T	MPa	A	B	C	H	H1	H2	
MR20812-04-04	6	-04	1/4"	1/4"-19	42	58.0	4.3	4.1	19	24	24	
MR20812-06-06	10	-06	3/8"	3/8"-19	42	59.4	7.0	5.9	22	27	27	
MR20812-08-08	12	-08	1/2"	1/2"-14	42	62.4	9.3	6.5	27	32	32	
MR20812-10-10	16	-10	5/8"	5/8"-14	35	68.0	12.5	9.7	28	36	36	
MR20812-12-12	19	-12	3/4"	3/4"-14	35	70.8	15.0	8.5	32	41	41	
MR20812-16-16	25	-16	1"	1"-11	35	81.0	19.8	10.6	38	50	50	

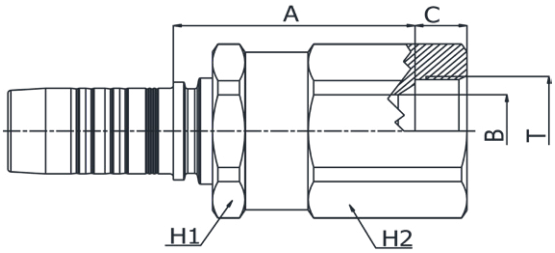


BS STANDARD CONNECTIONS

MR20892RT

90° BSP O-RING FEMALE SWEPT ELBOW
60° CONE BS5200 / ISO 12151-6

PART. REF.	SIZE			THREAD	W.P.	DIMENSIONS mm						
	DN	Dash	inch	T	MPa	A	B	C	E	H	H1	H2
MR20892-08-08RT	12	-08	1/2"	1/2"-14	42	45.9	9.3	6.5	85.3	27	32	32

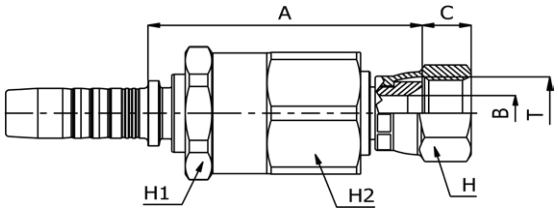


SAE STANDARD CONNECTIONS

MR22510

SWIVEL JOINT JIC
FEMALE 37° CONE SEAT
SAE J516 / ISO 12151-5

PART. REF.	SIZE			THREAD	W.P.	DIMENSIONS mm						
	DN	Dash	inch	T	MPa	A	B	C	H1	H2		
MR22510-20-20	31	-20	1.1/4"	1.5/8"-12	21	76.7	27.5	16.5	60	60		
MR22510-24-24	38	-24	1.1/2"	1.7/8"-12	16	87.5	33.5	19.5	70	70		



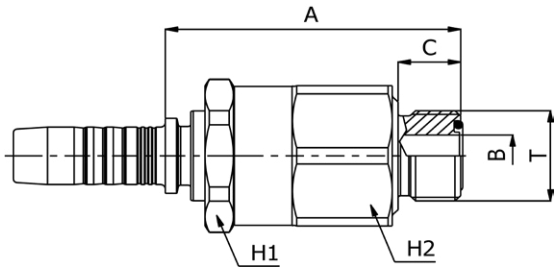
SAE STANDARD CONNECTIONS

MR22711

JIC
FEMALE DOUBLE HEXAGON 37°CONE SEAT

PART. REF.	SIZE			THREAD	W.P.	DIMENSIONS mm						
	DN	Dash	inch	T	MPa	A	B	C	H	H1	H2	
MR22711-06-06	10	-06	3/8"	9/16"-18	35	56.0	7.0	9.5	17	27	27	
MR22711-08-08	12	-08	1/2"	3/4"-16	35	59.9	9.3	10.7	22	32	32	
MR22711-08-10	12	-08	1/2"	7/8"-14	35	61.9	11.3	12.5	25	32	32	
MR22711-10-10	16	-10	5/8"	7/8"-14	35	66.8	11.3	12.5	25	36	36	
MR22711-12-12	19	-12	3/4"	1.1/16"-12	35	68.3	15.0	14.1	32	41	41	
MR22711-16-16	25	-16	1"	1.5/16"-12	28	79.8	19.8	15.3	38	50	50	

SAE STANDARD CONNECTIONS

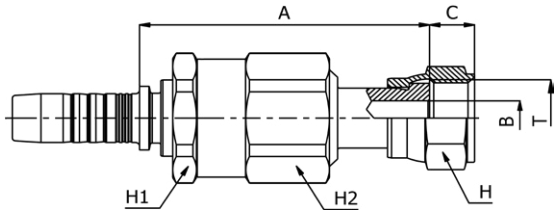


MR12410

ORFS
MALE
SAE J516 / ISO 12151-1

PART. REF.	SIZE			THREAD	W.P.	DIMENSIONS mm						
	DN	Dash	inch	T	MPa	A	B	C	H1	H2		
MR12410-08-08	12	-08	1/2"	13/16"-16	42	60.4	9.5	12.8	32	32		
MR12410-10-10	16	-10	5/8"	1"-14	42	68.8	12.5	15.5	36	36		

SAE STANDARD CONNECTIONS

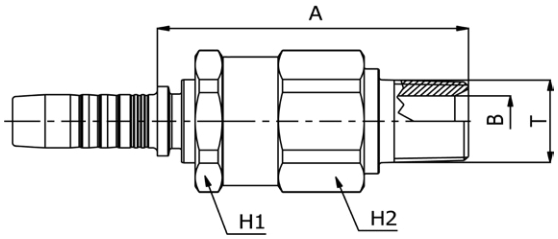


MR22411

ORFS
FEMALE
SAE J516 / ISO 12151-1
PULL BACK TYPE (CRIMPED BACK-NUT)

PART. REF.	SIZE			THREAD	W.P.	DIMENSIONS mm						
	DN	Dash	inch	T	MPa	A	B	C	H	H1	H2	
MR22411-06-06	10	-06	3/8"	11/16"-16	42	64.5	7.0	9.5	22	27	27	
MR22411-08-08	12	-08	1/2"	13/16"-16	42	70.9	9.3	11.0	24	32	32	
MR22411-10-10	16	-10	5/8"	1"-14	42	77.8	11.5	13.5	30	36	36	
MR22411-12-12	19	-12	3/4"	1.3/16"-12	35	83.8	14.0	14.5	36	41	41	
MR22411-16-16	25	-16	1"	1.7/16"-12	35	93.4	19.8	15.0	41	50	50	

SAE STANDARD CONNECTIONS

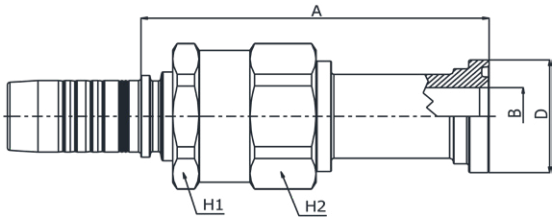


MR12810

NPTF MALE 60° CONE SEAT - SAE J516/J514

PART. REF.	SIZE			THREAD	W.P.	DIMENSIONS mm						
	DN	Dash	inch	T	MPa	A	B	H1	H2			
MR12810-04-04	6	-04	1/4"	1/4"-18	35	61.2	5.5	24	24			
MR12810-06-06	10	-06	3/8"	3/8"-18	28	60.7	9.3	27	27			
MR12810-08-08	12	-08	1/2"	1/2"-14	24.5	66.8	12.5	32	32			
MR12810-12-12	19	-12	3/4"	3/4"-14	21	74.2	16.0	41	41			
MR12810-16-16	25	-16	1"	1"-11.5	17.5	88.2	19.5	50	50			

SAE STANDARD CONNECTIONS

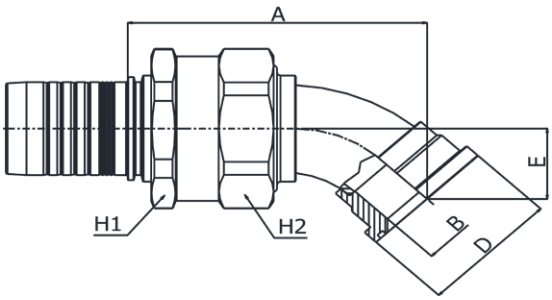


MR23311FK

ISO / SAE CODE 61 FLANGE
SAE J516 / ISO 12151-3
(VITON)

PART. REF.	SIZE			FLANGE	W.P.	DIMENSIONS mm						
	DN	Dash	inch	inch	MPa	A	B	D	H1	H2		
MR23311-20-20FK	31	-20	1.1/4"	1.1/4"	28	136.7	26.0	51.0	60	60		
MR23311-20-24FK	31	-20	1.1/4"	1.1/2"	21	134.7	32.0	60.5	60	60		
MR23311-24-24FK	38	-24	1.1/2"	1.1/2"	21	147.9	32.0	60.5	70	70		
MR23311-32-32FK	51	-32	2"	2"	21	154.4	42.0	71.6	90	90		

SAE STANDARD CONNECTIONS

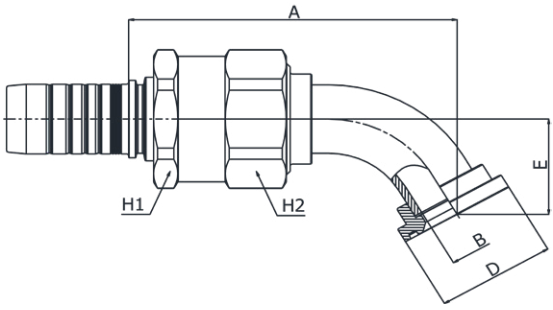


MR23341FK

45° ISO / SAE CODE 61 FLANGE
SAE J516 / ISO 12151-3
(VITON)

PART. REF.	SIZE			FLANGE	W.P.	DIMENSIONS mm						
	DN	Dash	inch	inch	MPa	A	B	D	E	H1	H2	
MR23341-40-40FK	63	-40	2.1/2"	2.1/2"	14	174.5	52.0	84.3	48.5	100	100	

SAE STANDARD CONNECTIONS

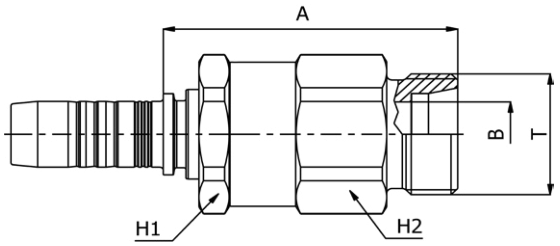


MR23361FK

60° ISO / SAE CODE 61 FLANGE
SAE J516 / ISO 12151-3
(VITON)

PART. REF.	SIZE			FLANGE	W.P.	DIMENSIONS mm						
	DN	Dash	inch	inch	MPa	A	B	D	E	H1	H2	
MR23361-24-24FK	38	-24	1.1/2"	1.1/2"	21	166.6	32.0	60.5	52.9	70	70	
MR23361-24-32FK	38	-24	1.1/2"	2"	21	170.1	42.0	71.6	59.0	70	70	

DIN STANDARD CONNECTIONS

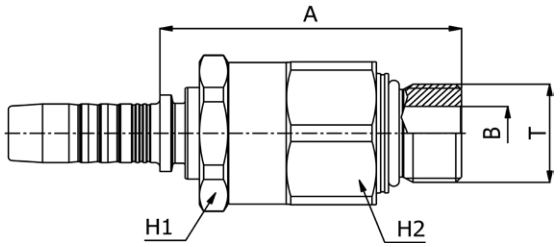


MR11210

METRIC
MALE 24° CONE SEAT HEAVY DUTY
DIN 20066 / ISO 12151-2

PART. REF.	SIZE			THREAD	PIPE	W.P.	DIMENSIONS mm						
	DN	Dash	inch	T	mm	MPa	A	B	H1	H2			
MR11210-10-30	16	-10	5/8"	M30X2	20	42	66.3	16.0	36	36			

DIN STANDARD CONNECTIONS

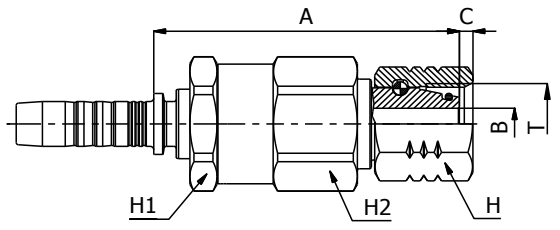


MR11910

METRIC
MALE HEAVY DUTY SERIES
ISO 6149-2

PART. REF.	SIZE			THREAD	W.P.	DIMENSIONS mm						
	DN	Dash	inch	T	MPa	A	B	H1	H2			
MR11910-06-18	10	-06	3/8"	M18X1.5	42	60.5	9.0	27	27			
MR11910-08-22	12	-8	1/2"	M22X1.5	42	61.9	12.0	32	32			

DIN STANDARD CONNECTIONS

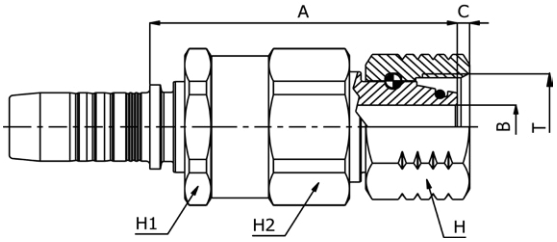


MR21512

METRIC
O-RING FEMALE 24° CONE LIGHT DUTY
DIN 20066 / ISO 12151-2
(THRUST-WIRE NUT)

PART. REF.	SIZE			THREAD	PIPE	W.P.	DIMENSIONS mm						
	DN	Dash	inch	T	mm	MPa	A	B	C	H	H1	H2	
MR21512-04-16	6	-04	1/4"	M16X1.5	10	35	63.2	6.0	3.0	19	24	24	
MR21512-06-18	10	-06	3/8"	M18X1.5	12	33	65.3	7.0	2.9	22	27	27	
MR21512-10-26	16	-10	5/8"	M26X1.5	18	25	72.3	12.5	2.3	32	36	36	

DIN STANDARD CONNECTIONS

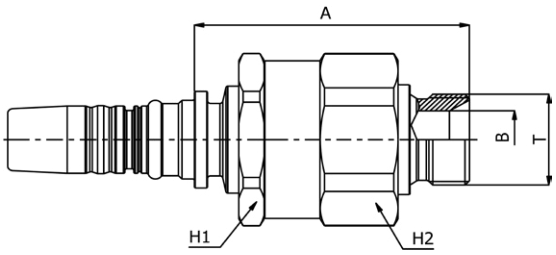


MR21612

METRIC O-RING FEMALE 24° CONE HEAVY DUTY DIN 20066 / ISO 12151-2 (THRUST-WIRE NUT)

PART. REF.	SIZE			THREAD	PIPE	W.P.	DIMENSIONS mm						
	DN	Dash	inch	T	mm	MPa	A	B	C	H	H1	H2	
MR21612-12-30	19	-12	3/4"	M30X2	20	35	79.8	12.5	3.2	36	41	41	

BS STANDARD CONNECTIONS

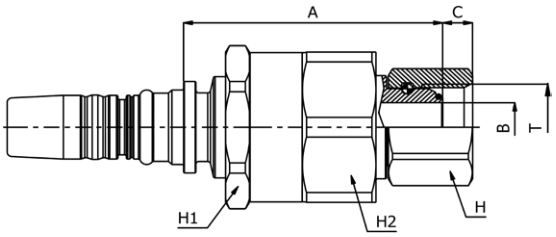


MR30510

BSP MALE 60° CONE SEAT BS5200

PART. REF.	SIZE			THREAD	W.P.	DIMENSIONS mm						
	DN	Dash	inch	T	MPa	A	B	H1	H2			
MR30510-12-12	19	-12	3/4"	3/4"-14	35	73.9	16.7	46	46			
MR30510-16-16	25	-16	1"	1"-11	35	85.7	22.2	55	55			
MR30510-20-20	31	-20	1.1/4"	1.1/4"-11	35	95.8	28.6	65	65			
MR30510-24-24	38	-24	1.1/2"	1.1/2"-11	30	109.6	33.3	75	75			

BS STANDARD CONNECTIONS

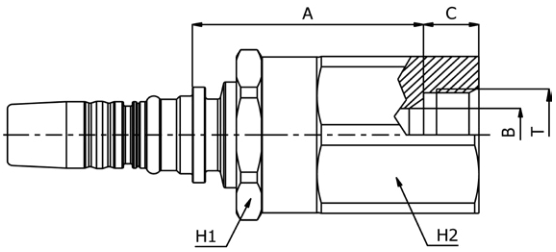


MR40812

BSP O-RING FEMALE 60° CONE BS5200/ ISO 8434-6

PART. REF.	SIZE			THREAD	W.P.	DIMENSIONS mm						
	DN	Dash	inch	T	MPa	A	B	C	H	H1	H2	
MR40812-12-12	19	-12	3/4"	3/4"-14	35	73.7	15.0	8.5	32	46	46	
MR40812-16-16	25	-16	1"	1"-11	35	83.7	19.8	10.6	41	55	55	

SAE STANDARD CONNECTIONS

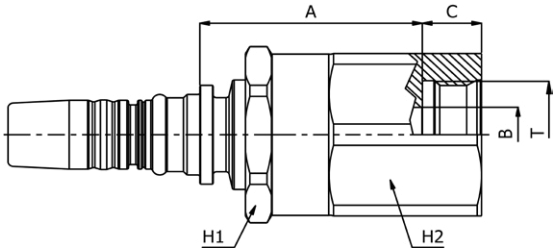


MR42510

JIC
FEMALE 37 °CONE SEAT
SAE J514

PART. REF.	SIZE			THREAD	W.P.	DIMENSIONS mm						
	DN	Dash	inch	T	MPa	A	B	C	H1	H2		
MR42510-12-12	19	-12	3/4"	1.1/16"-12	35	62.7	15.5	15.0	46	46		
MR42510-16-16	25	-16	1"	1.5/16"-12	28	70.0	21.5	16.5	55	55		

SAE STANDARD CONNECTIONS

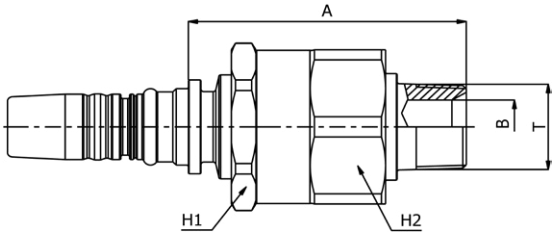


MR42410

ORFS
FEMALE
ISO 8434-3 / SAE J1453

PART. REF.	SIZE			THREAD	W.P.	DIMENSIONS mm						
	DN	Dash	inch	T	MPa	A	B	C	H1	H2		
MR42410-12-12	19	-12	3/4"	1.3/16"-12	42	58.2	15.5	15.5	46	46		
MR42410-16-16	25	-16	1"	1.7/16"-12	42	66.0	20.5	16.0	55	55		

SAE STANDARD CONNECTIONS

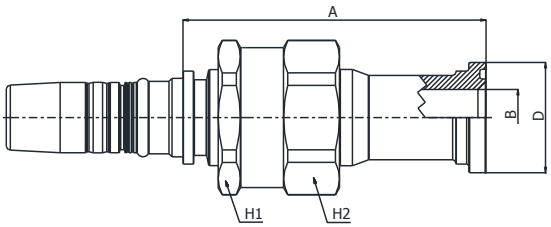


MR32810

NPTF
MALE 60° CONE SEAT
SAE J476A

PART. REF.	SIZE			THREAD	W.P.	DIMENSIONS mm						
	DN	Dash	inch	T	MPa	A	B	H1	H2			
MR32810-12-12	19	-12	3/4"	3/4"-14	21	77.1	16.0	46	46			
MR32810-16-16	25	-16	1"	1"-11.5	17.5	90.9	19.5	55	55			

SAE STANDARD CONNECTIONS

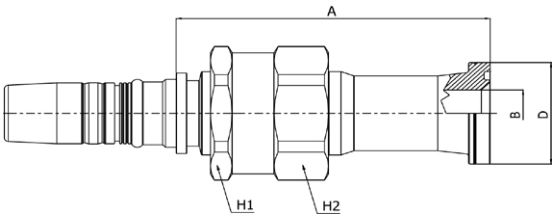


MR43310

ISO / SAE CODE 61 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	SIZE			FLANGE	W.P.	DIMENSIONS mm						
	DN	Dash	inch	inch	MPa	A	B	D	H1	H2		
MR43310-20-20	31	-20	1.1/4"	1.1/4"	28	140.6	26.0	51.0	65	65		

SAE STANDARD CONNECTIONS

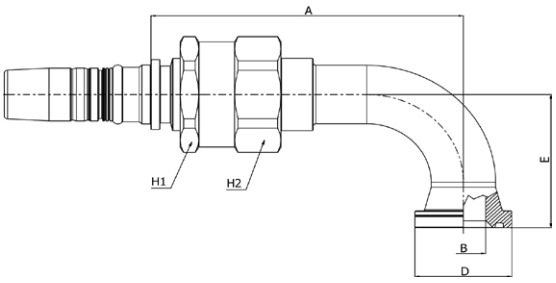


MR43610

ISO / SAE CODE 62 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	SIZE			FLANGE	W.P.	DIMENSIONS mm						
	DN	Dash	inch	inch	MPa	A	B	D	H1	H2		
MR43610-20-20	31	-20	1.1/4"	1.1/4"	42	149.8	25.0	54.2	65	65		

SAE STANDARD CONNECTIONS

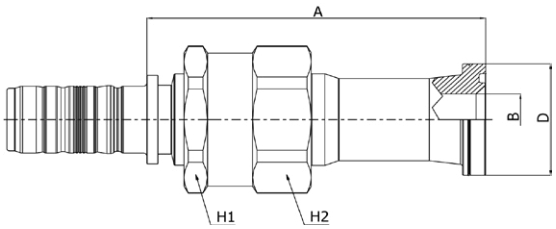


MR43690

90° ISO / SAE CODE 62 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	SIZE			FLANGE	W.P.	DIMENSIONS mm						
	DN	Dash	inch	inch	MPa	A	B	D	E	H1	H2	
MR43690-20-20	31	-20	1.1/4"	1.1/4"	42	174.6	25.0	54.2	82.0	65	65	

SAE STANDARD CONNECTIONS

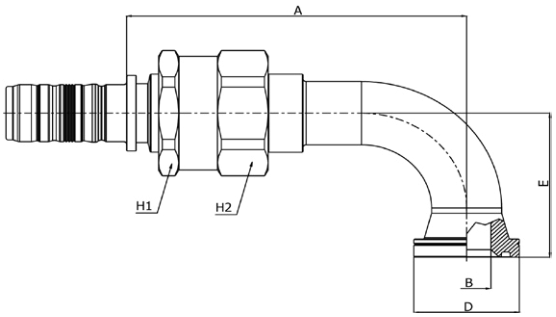


MR83611

ISO / SAE CODE 62 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	SIZE			FLANGE	W.P.	DIMENSIONS mm						
	DN	Dash	inch	inch	MPa	A	B	D	H1	H2		
MR83611-20-20	31	-20	1.1/4"	1.1/4"	42	149.9	25.0	54.2	65	65		

SAE STANDARD CONNECTIONS

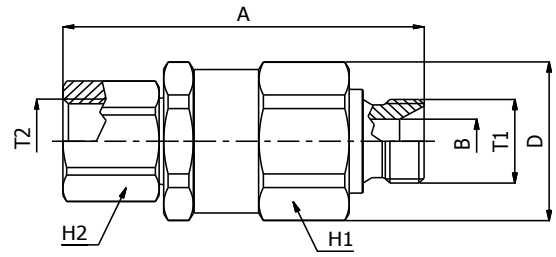


MR83691

90° ISO / SAE CODE 62 FLANGE
SAE J516 / ISO 12151-3

PART. REF.	SIZE			FLANGE	W.P.	DIMENSIONS mm						
	DN	Dash	inch	inch	MPa	A	B	D	E	H1	H2	
MR83691-20-20	31	-20	1.1/4"	1.1/4"	42	174.6	25.0	54.2	82.0	65	65	

BS STANDARD CONNECTIONS



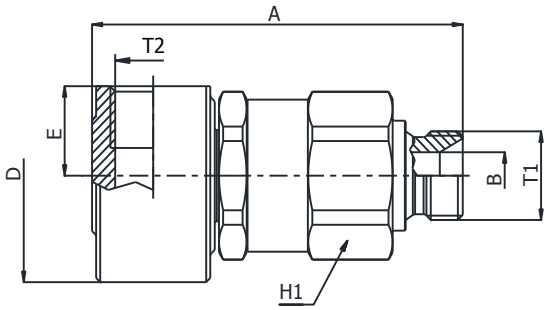
AR520504

SWIVEL JOINT STRAIGHT
MALE BSP - FEMALE BSP

PART. REF.	SIZE			THREAD		W.P.	DIMENSIONS mm						
	DN	Dash	inch	T1	T2	MPa	A	B	D	H1	H2		
AR520504-04-04	10	-06	3/8"	1/4"-19	1/4"-19	42	69.9	4.7	30.0	27.0	19.0		
AR520504-06-06	10	-06	3/8"	3/8"-19	3/8"-19	42	69.9	8.0	30.0	27.0	22.0		
AR520504-08-08	16	-10	5/8"	1/2"-14	1/2"-14	35	82.9	11.0	39.5	36.0	27.0		
AR520504-12-12	19	-12	3/4"	3/4"-14	3/4"-14	35	87.6	16.7	45.0	41.0	34.0		
AR520504-16-16	25	-16	1"	1"-11	1"-11	35	101.8	22.2	55.0	50.0	41.0		
AR520504-20-20	31	-20	1.1/4"	1.1/4"-11	1.1/4"-11	35	112.1	28.6	66.0	60.0	55.0		
AR520504-24-24	38	-24	1.1/2"	1.1/2"-11	1.1/2"-11	30	128.3	33.3	77.0	70.0	65.0		

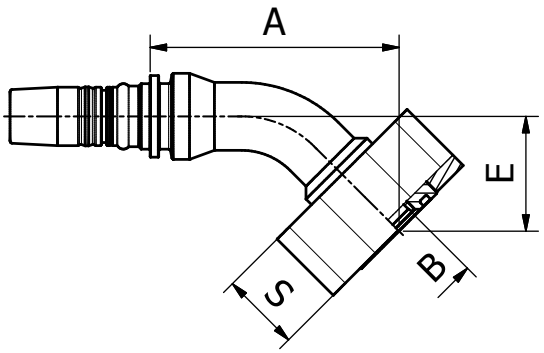
BS STANDARD CONNECTIONS

AR580504



SWIVEL JOINT 90°
MALE BSP - FEMALE BSP

PART. REF.	SIZE			THREAD		W.P.	DIMENSIONS mm						
	DN	Dash	inch	T1	T2	MPa	A	B	D	E	H1		
AR580504-04-04	10	-06	3/8"	1/4"-19	1/4"-19	42	70.4	4.7	36.0	16.0	27.0		
AR580504-06-06	10	-06	3/8"	3/8"-19	3/8"-19	42	75.4	8.0	39.0	16.0	27.0		
AR580504-08-08	16	-10	5/8"	1/2"-14	1/2"-14	35	90.9	11.0	50.0	21.0	36.0		
AR580504-12-12	19	-12	3/4"	3/4"-14	3/4"-14	35	100.1	16.7	60.0	24.0	41.0		
AR580504-16-16	25	-16	1"	1"-11	1"-11	35	117.3	22.2	70.0	28.0	50.0		

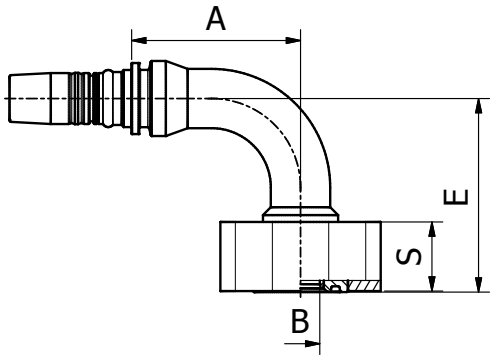


SAE STANDARD CONNECTIONS

M4364A

45° ADJUSTABLE FLANGE

PART. REF.	HOSE BORE			FLANGE		DIMENSIONS mm						
	DN	Dash	inch	inch		A	B	E	S			
M4364A-12-12	19	- 12	3/4"	3/4"		90.5	14.5	37.5	27.4			
M4364A-16-16	25	- 16	1"	1"		109.5	19.5	50.5	35			
M4364A-20-20	31	- 20	1.1/4"	1.1/4"		136.5	25	56.5	35			



SAE STANDARD CONNECTIONS

M4369A

90° ADJUSTABLE FLANGE

PART. REF.	HOSE BORE			FLANGE		DIMENSIONS mm						
	DN	Dash	inch	inch		A	B	E	S			
M4369A-12-12	19	- 12	3/4"	3/4"		72.5	14.5	73	27.4			
M4369A-16-16	25	- 16	1"	1"		85.5	19.5	98	35			
M4369A-20-20	31	- 20	1.1/4"	1.1/4"		112	25	111.5	35			

manuli®
HYDRAULICS



QUICK COUPLINGS

INTRODUCTION

Q.Safe is the Manuli Hydraulics offering for quick coupling applications. Composed of an ever-expanding range of products, the Q.Safe brand has rapidly become an industry byword for quality and performance. The entire Q.Safe product range is manufactured with our E-Coat 500 treatment which provides an environmentally friendly surface coating (chrome free) far exceeding ISO 4520 requirements (salt spray resistance: 240 hours for white corrosion and 500 for red corrosion). Some Q.Safe products also have the option to upgrade to our new E-Coat 1000 plating which offers 1,000 hours to red corrosion (see page 96 for details).

Guaranteeing leak-free performance, the Q.Safe brand is suitable for a wide range of different applications and assures total interchangeability with other quick coupling products on the market. All Q.Safe products are manufactured and assembled in our world-class facility, where they are subjected to stringent quality controls including:

- 100% visual check
- 100% functional test
- 100% air sealing test

Manuli Hydraulics Q.Safe are suggested for the following application fields:

AGRICULTURE AND FORESTRY (TRACTORS, TRAILERS, HARVESTER MACHINES)

- Quick couplings according to ISO 7241-A standard connectable in whatever pressure conditions:
- MQS-A and MQS-AF, MQS-N in case of no pressure in the hydraulic line.
- MQS-AP, MQS-AFP, MQS-AFM, MQS-AFB, MQS-ARM and MQS-ARB in case of pressure in one or both the hydraulic lines.
- Quick couplings for hydraulic braking systems: MQS-VB according to ISO 5676 standard, MQS-VS
- Flat Face Quick couplings according to ISO 16028 standards: MQS-F, MQS-FP, MQS-FS
- Screw-type couplings: MQS-SG, MQS-SGR
- Quick couplings for diagnosis according to ISO 15171-1 standard: MQS-D
- Quick couplings “direct hose integration”: MQS-DHI
- Check valves: MQS-CV, MQS-CVC

MINING (DRILLS)

- MQS-A, MQS-N
- MQS-F
- MQS-SG, MQS-SGR
- MQS-SC
- MQS-SH
- MQS-CV, MQS-CVC

CONSTRUCTION EQUIPMENTS AND UTILITY VEHICLES (EXCAVATORS, SKID STEERS LOADERS, WHEEL-LOADERS, HYDRAULIC TOOLS AND DUMP TRAILERS)

- MQS-A, MQS-AF, MQS-N, MQS-B
- MQS-F, MQS-FP, MQS-FS
- MQS-SG, MQS-SGR
- MQS-D
- Screw type couplings for very high static pressure: MQS-SC
- Screw type couplings for extreme working conditions: MQS-SH
- Wing nut screw type couplings: MQS-ST
- MQS-DHI
- MQS-CV, MQS-CVC

OIL & GAS

- MQS-SO
- MQS-BOP

INDUSTRY

- MQS-F
- MQS-SH
- MQS-B
- MQS-D
- MQS-DHI
- MQS-CV, MQS-CVC

QUICK COUPLING SELECTION

To ensure that you select the correct quick coupling for your needs, Manuli Hydraulics recommends that the following factors be considered:

Pressure and Flow Rate - The selected quick coupling must always be suitable for the pressure and flow rate in the system. Always check that the selected quick coupling's maximum working pressure is equal to or greater than the maximum pressure of the system (including pressure spikes).

Connection Under Pressure - Many quick couplings can only be connected / disconnected when the line pressure has been reduced to zero. If this is not possible you should select a quick coupling which is connectible under pressure. When disconnecting couplings the line pressure must be reduced to zero. Avoid using tools to connect / disconnect quick couplings.

Fluid Compatibility - Always check that the fluids used are compatible with the materials and seals used in the quick couplings.

Temperature - Always verify that the maximum working temperature of the system is within the operational limits of the quick coupling selected.

Environmental Conditions - Be aware that certain environmental conditions can cause damage or excessive corrosion to the quick couplings. Some specific examples are environments where there are harsh chemicals, UV radiation or salt waters.

GENERAL PRECAUTIONS

- Before connecting the quick coupling carefully clean the insert in order to prevent excessive wear on seals.
- Use suitable protective components such as plugs and caps when quick couplings are not in use to prevent unnecessary wear or damage.
- Shock impacts, such as falling on the ground, may damage your quick coupling. Take precautions to avoid this kind of impact.
- Replace damaged / worn O-rings and back-up rings as soon as possible using the recommended spare part kits.
- Inspect each quick coupling after every individual application in order to detect any visible cracks, leakage, damage or corrosion.

MQS-DHI "DIRECT HOSE INTEGRATION"

An innovative system to enable direct assembly of the quick-release coupling to the flexible hose, and therefore avoiding intermediate connection elements.

Some of the benefits of this solution are:

- Reduced risk of oil leakage
- Elimination of unscrewing problems in the field
- Reduction in the number of assembly elements leading to reduced assembly cost, minimised risk of assembly operation mistakes and greater safety in severe working conditions, as well as easier maintenance and replacement operations

Design solutions are available for most common series ISO A, ISO B, Push-Pull & Flat-Face

DHI quick release coupling maintenance is possible without the need to replace the flexible hose.

Q.SAFE FLAT FACE MULTICONNECTORS

The Q.Safe quick coupling range is widely renowned for representing the Gold Standard in quick coupling quality and performance. The introduction of the Q.Safe Flat Face Multiconnector range combines this superior performance with the added efficiency and safety related benefits of a multiconnector block system.

- Reduces connection time when multiple connectors are used
- No risk of incorrect connection
- No misalignment between mobile and static blocks
- Compact design for minimal added weight
- Flat face couplings allow high pressures (350 bar) and high flow rates
- Allows hoses to be arranged closer together whilst still allowing easy access
- Industry leading performance with reduced pressure drop
- Almost zero (between 0.007cc and 0.009cc) oil spillage on connection / disconnection
- Connection under residual pressure
- Easy to clean

Q.SAFE QUICK COUPLINGS

QUICK COUPLINGS SERIES	DESCRIPTION	FEMALE	MALE	SHUT-OFF SYSTEM	SPECIFICATIONS	CONNECTION	SIZE										PAGE No.
							1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/4"	1 1/2"	2"	
MQS-A	ISO A	Q008	Q002	POPPET VALVE	ISO 7241 SERIES A	LOCKING BALLS		■	■	■		■	■	■	■	■	341
			Q004	SHIELDED POPPET						■							
		Q009	Q003	BALL VALVE						■							
MQS-AP	ISO A CONNECTABLE UNDER PRESSURE	Q010	Q006	POPPET VALVE	ISO 7241 SERIES A	LOCKING BALLS				■							352
MQS-AM	ISO A CONNECTABLE WITH MALE UNDER PRESSURE	Q011	-	POPPET VALVE	ISO 7241 SERIES A	LOCKING BALLS				■							354
MQS-AB	ISO A CONNECTABLE WITH BOTH PARTS UNDER PRESSURE	Q012	-	POPPET VALVE	ISO 7241 SERIES A	LOCKING BALLS				■							356
MQS-B	ISO B	Q024	Q021	POPPET VALVE	ISO 7241 SERIES B	LOCKING BALLS	■	■	■	■		■	■				358
MQS-BOP	ISO B FOR DRILLING BOP UNIT	Q026 F	Q021 F	POPPET VALVE	ISO 7241 SERIES B + FLAME TEST RES. TO API 16D	LOCKING BALLS				■		■	■				361
MQS-N	STANDARD	Q032	Q029	POPPET VALVE	-	LOCKING BALLS		■	■			■	■	■	■		363
		Q033	Q030	BALL VALVE				■	■			■	■				
MQS-NL	FREE-FLOW	Q038	Q037	WITHOUT	-	LOCKING BALLS		■	■	■							369
MQS-NF	STANDARD PUSH-PULL	Q036	-	POPPET VALVE	-	LOCKING BALLS		■	■								371
MQS-AF	PUSH-PULL	Q013	-	POPPET VALVE	ISO 7421 SERIES A	LOCKING BALLS		■	■	■		■	■				373
MQS-AFP	PUSH-PULL CONNECTABLE UNDER PRESSURE	Q015	-	POPPET VALVE	ISO 7421 SERIES A	LOCKING BALLS				■							380
MQS-AFM	PUSH-PULL, CONNECTABLE WITH MALE UNDER PRESSURE, FLEXIBLE MOUTING	Q016	-	POPPET VALVE	ISO 7421 SERIES A	LOCKING BALLS				■							382
MQS-AFB	PUSH-PULL CONNECTABLE WTIH MALE UNDER PRESSURE, FLEXIBLE MOUNTING	Q017	-	POPPET VALVE	ISO 7421 SERIES A	LOCKING BALLS				■							384
MQS-ARM	PUSH-PULL, CONNECTABLE WITH MALE UNDER PRESSURE, RIGID MOUNTING	Q018	-	POPPET VALVE	ISO 7421 SERIES A	LOCKING BALLS				■							386
MQS-ARB	PUSH-PULL CONNECTABLE WITH BOTH PARTS UNDER PRESSURE, RIGID MOUNTING	Q019	-	POPPET VALVE	ISO 7421 SERIES A	LOCKING BALLS				■							390
MQS-VB	BRAKING CIRCUIT VALVE	Q048	Q047	FLAT VALVE	ISO 5676	LOCKING BALLS				■							395
MQS-VS	AGRICULTURAL VALVE	Q050	Q049	FLAT VALVE	-	SCREW-ON SLEEVE				■							401

QUICK COUPLINGS SERIES	DESCRIPTION	FEMALE	MALE	SHUT-OFF SYSTEM	SPECIFICATIONS	CONNECTION	SIZE										PAGE No.
							1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/4"	1 1/2"	2"	
MQS-D	DIAGNOSTIC	-	Q045	FLAT VALVE	ISO 15171-1	LOCKING BALLS	■										406
MQS-F	FLAT-FACE	Q041	Q039	FLAT VALVE	ISO 16028 E HTMA (ONLY 3/8" SIZE)	LOCKING BALLS		■	■	■	■	■	■				411
MQS-FH	FLAT-FACE HIGH PRESSURE	Q044	Q043	FLAT VALVE	ISO 16028 E HTMA (ONLY 3/8" SIZE)	LOCKING BALLS		■	■	■	■	■	■				418
MQS-FP	FLAT-FACE CONNECTABLE UNDER PRESSURE	-	Q040	FLAT VALVE	ISO 16028 E HTMA (ONLY 3/8" SIZE)	LOCKING BALLS			■	■	■	■	■				421
MQS-FS	FLAT-FACE SCREW TYPE	Q067	Q066	FLAT VALVE	MANULI STANDARDS	SCREW-ON SLEEVE			■	■	■	■	■		■		424
MQS-SG	SCREW	Q052	Q051	POPPET VALVE	GERMAN MARKET INTERCHANGEABLE ISO 14541 (FROM 3/8" TO 3/4")	SCREW-ON SLEEVE		■	■	■		■	■				427
MQS-SGR	SCREW HEAVY DUTY	Q062	Q061	POPPET VALVE	GERMAN MARKET INTERCHANGEABLE ISO 14541 (FROM 3/8" TO 3/4")	SCREW-ON SLEEVE			■	■		■	■		■		430
MQS-SH	SCREW HEAVY DUTY	Q054	Q053	POPPET VALVE	FRENCH MARKET INTERCHANGEABLE	SCREW-ON SLEEVE		■	■	■		■	■	■	■		437
MQS-SC	SCREW HYDRAULIC CYLINDERS	Q056	Q055	POPPET VALVE & BALL VALVE	ISO 14540	SCREW-ON SLEEVE		■	■								441
MQS-SO	SCREW FOR OIL & GAS	Q077	Q076	POPPET VALVE	-	SCREW-ON SLEEVE									■	■	450
MQS-ST	SCREW FOR TRUCK	Q058	Q057	POPPET VALVE	-	SCREW-ON SLEEVE						■	■				453

Q.Safe Stainless Steel Quick Couplings

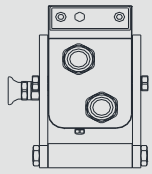
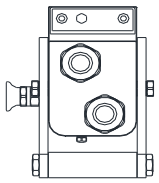
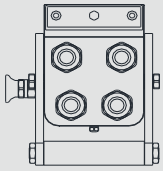
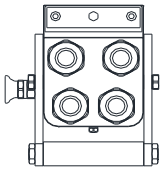
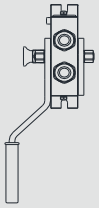
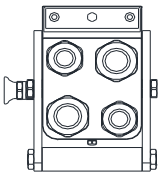
QUICK COUPLINGS SERIES	DESCRIPTION	FEMALE	MALE	SHUT-OFF SYSTEM	SPECIFICATIONS	CONNECTION	SIZE										PAGE No.
							1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/4"	1 1/2"	2"	
MQS-B SS	ISO B STAINLESS STEEL	Q024	Q021	POPPET VALVE	ISO 7241 SERIES B	LOCKING BALLS	■	■	■	■		■	■				456
MQS-F SS	FLAT-FACE STAINLESS STEEL	Q041	Q039	FLAT VALVE	ISO 16028 & HTMA (ONLY 3/8" SIZE)	LOCKING BALLS		■	■	■	■	■	■				458
MQS-SH SS	SCREW HEAVY DUTY STAINLESS STEEL	Q054	Q053	POPPET VALVE	-	SCREW-ON SLEEVE		■	■	■		■	■	■			460

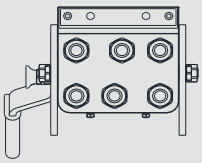
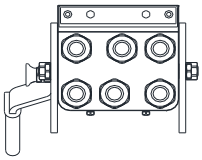
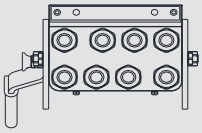
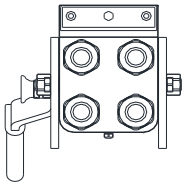
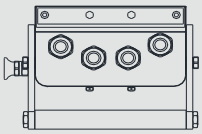
Q.Safe DHI Quick Couplings

QUICK COUPLINGS SERIES	DESCRIPTION	FEMALE	MALE	SHUT-OFF SYSTEM	SPECIFICATIONS	CONNECTION	SIZE										PAGE No.
							1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/4"	1 1/2"	2"	
MQS-A DHI	ISO A	Q308	Q302	POPPET VALVE	ISO 7241 SERIES A	LOCKING BALLS				■							463
MQS-AF DHI	ISO A PUSH-PULL	Q313	-	POPPET VALVE	ISO 7241 SERIES A	LOCKING BALLS				■							465
MQS-B DHI	ISO B	Q324	Q321	POPPET VALVE	ISO 7241 SERIES B	LOCKING BALLS		■	■	■							467
MQS-F DHI	FLAT-FACE	Q341	Q339	FLAT-FACE	ISO 16028 & HTMA (ONLY 3/8" SIZE)	LOCKING BALLS			■	■							469

manuli® HYDRAULICS

Q.SAFE MULTICONNECTORS

MULTI-COUPLING SERIES	CONFIGURATION	NO. OF LINES	SIZE			PAGE No.
			DN	inch	Dash	
Q401		2	10	⅜"	-06	472
Q402		2	12.5	½"	-08	473
Q403		4	10	⅜"	-06	474
Q404		4	12.5	½"	-08	475
Q405		2	10	⅜"	-06	476
Q406		2	12.5	½"	-08	477
		2	19	¾"	-12	

MULTI-COUPLING SERIES	CONFIGURATION	NO. OF LINES	SIZE			PAGE No.
			DN	inch	Dash	
Q407		6	10	⅜"	-06	478
Q408		6	12.5	½"	-08	479
Q409		8	12.5	½"	-08	480
Q410		4	12.5	½"	-08	481
Q411		4	10	⅜"	-06	482

Q.SAFE ACCESSORIES

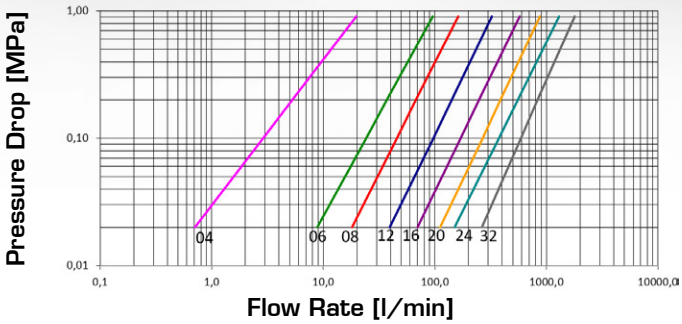
ACCESSORY TYPE	SIZE										PAGE No.
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PARKING				■		■	■				485
PLUGS & CAPS	■	■	■	■	■	■	■	■	■		487
SPARE PARTS	■	■	■	■	■	■	■	■	■	■	496

manuli HYDRAULICS

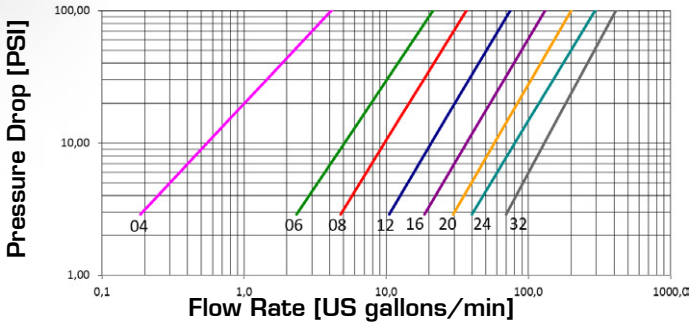
ISO A POPPET VALVES



Pressure Drop



Pressure Drop



TECHNICAL DATA

SIZE			WORKING PRESSURE (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		CONNECTION EFFORT		OIL SPILLAGE Connection/ Disconnection		MINIMUM BURST PRESSURE						CONNECTION/ DISCONNECTION UNDER PRESSURE
											Male		Female		M & F		
DN	inch	Dash	MPa	PSI	l/min	US GPM	N	lb.	cc.	cubic inch	MPa	PSI	MPa	PSI	MPa	PSI	
6.3	¼	04	35	5075	5	1.3	60	13.5	0.7	0.043	200	29000	150	21750	150	21750	Not allowed
10	⅜	06	35	5075	37	9.2	80	18.0	1.4	0.085	140	20300	150	21750	150	21750	Not allowed
12.5	½	08	30	4350	68	19.8	80	18.0	2	0.122	125	18125	150	21750	150	21750	Not allowed
20	¾	12	25	3625	142	38.8	90	20.2	7	0.427	100	14500	120	17400	100	14500	Not allowed
25	1	16	25	3625	250	66.1	90	20.2	11	0.671	100	14500	100	14500	100	14500	Not allowed
31.5	1¼	20	25	3625	390	103.0	90	20.2	15	0.915	100	14500	100	14500	105	15225	Not allowed
40	1½	24	22	3190	553	146.1	100	22.5	21	1.281	90	13050	100	14500	100	14500	Not allowed
51	2	32	15	2175	838	221.4	225	50.6	45	2.746	60	8700	60	8700	90	13050	Not allowed

The rated flow represents the normal operating condition. The maximum recommended flow rate is equal to 1.5 times the rated flow

PRODUCT DESCRIPTION

- Reference series on the agriculture and industrial market
- Simple connection and disconnection by pulling back the sleeve
- Positive, quick connection of the male into the female by the latching ball system
- Shut-off by poppet valve
- High resistant materials and hardened male and sleeve to withstand the brinelling effect
- Interchangeability according to ISO 7241 series A

MATERIAL

Female and male couplings in steel, with some hardened areas, in correspondence to the most stressed points. Springs in C98 steel, seals in NBR (other materials on request) and back-up ring in PTFE. PU seal on ½" female available on request.

WORKING TEMPERATURE

-22°F up to +230°F (-30°C up to +110°C)
For other temperatures, the coupling may be assembled with the specific seals

SAFETY FACTOR

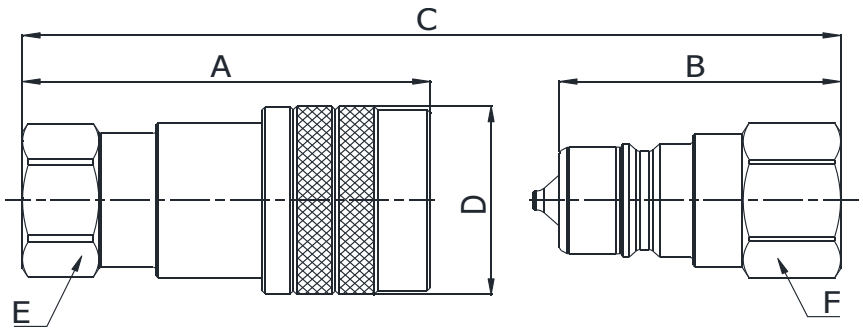
4:1 for dynamic pressures

IMPULSE PRESSURES

100,000 cycles at 133% of the rated one (freq. 1Hz)

TEST SPECIFICATIONS

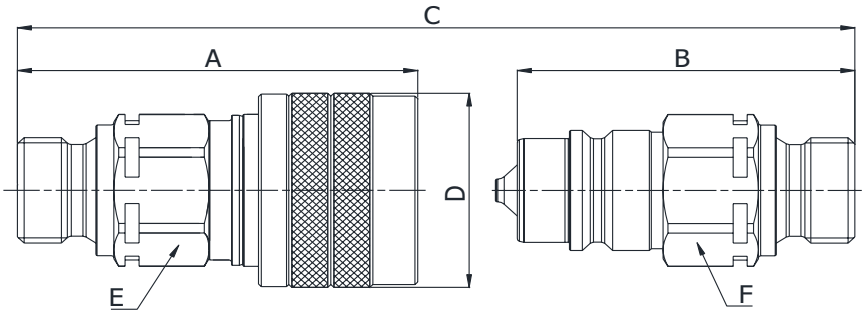
ISO 18869



Q00811021A
Q00211021A

BSPT TERMINATION ENDS
TO ISO 7-1
TAPERED

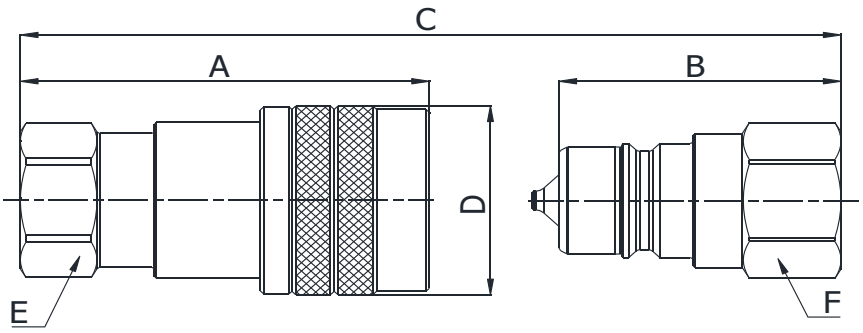
SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
6.3	1/4"	-04	Q00811021A-04-04	Q00211021A-04-04	1/4"	48.8	34.5	A+B-14,3	ø24	17	17
10	3/8"	-06	Q00811021A-06-06	Q00211021A-06-06	3/8"	57.8	40	A+B-17,8	ø30	22	22
12.5	1/2"	-08	Q00811021A-08-08	Q00211021A-08-08	1/2"	67.1	45	A+B-22,1	ø38	27	27
20	3/4"	-12	Q00811021A-12-12	Q00211021A-12-12	3/4"	83.5	56.5	A+B-27	ø45	34	34
25	1"	-16	Q00811021A-16-16	Q00211021A-16-16	1"	97.9	64.5	A+B-32,7	ø 52,3	41	41



Q00811050A
Q00211050A

BSP TERMINATION ENDS
TO ISO 8434-6

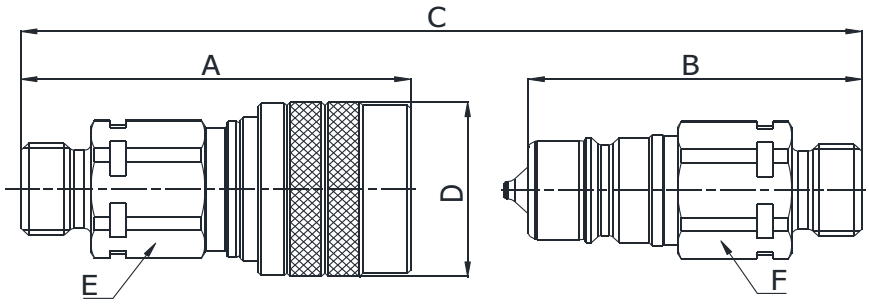
SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
10	3/8"	-06	Q00811050A-06-06	Q00211050A-06-06	3/8"	64.7	56.2	A+B-17,5	ø30	22	22
12.5	1/2"	-08	Q00811050A-08-06	Q00211050A-08-06	3/8"	68.9	57.7	A+B-21,8	ø38	27	27
12.5	1/2"	-08	Q00811050A-08-08	Q00211050A-08-08	1/2"	71.4	60.2	A+B-21,8	ø38	27	27



Q00811041A
Q00211041A

BSP TERMINATION ENDS
TO DIN 3852 X TYPE

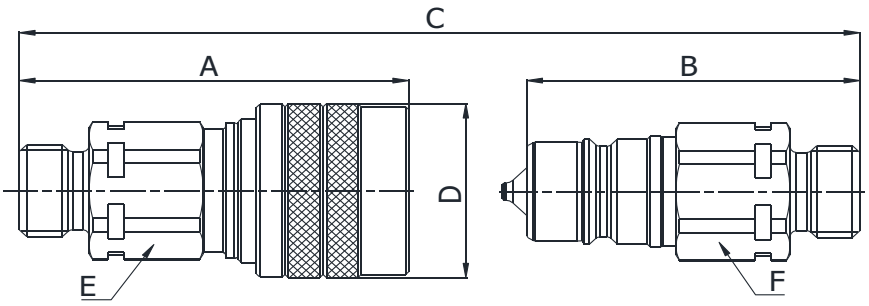
SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
6.3	1/4"	-04	Q00811041A-04-04	Q00211041A-04-04	1/4"	48.8	34.5	A+B-14,2	ø24	17	17
10	3/8"	-06	Q00811041A-06-04	Q00211041A-06-04	1/4"	63	54.5	A+B-17,5	ø30	22	22
10	3/8"	-06	Q00811041A-06-06	Q00211041A-06-06	3/8"	57.8	40	A+B-17,5	ø30	22	22
12.5	1/2"	-08	Q00811041A-08-06	Q00211041A-08-06	3/8"	66.2	55	A+B-21,8	ø38	27	27
12.5	1/2"	-08	Q00811041A-08-08	Q00211041A-08-08	1/2"	67	45	A+B-21,8	ø38	27	27
12.5	1/2"	-08	Q00811041A-08-12	Q00211041A-08-12	3/4"	69	53	A+B-21,8	ø38	34	34
20	3/4"	-12	Q00811041A-12-08	Q00211041A-12-08	1/2"	85.7	66.3	A+B-26,7	ø45	34	34
20	3/4"	-12	Q00811041A-12-12	Q00211041A-12-12	3/4"	83.5	56.5	A+B-26,7	ø45	34	34
25	1"	-16	Q00811041A-16-12	Q00211041A-16-12	3/4"	97.9	64.5	A+B-32,7	ø52	41	41
25	1"	-16	Q00811041A-16-16	Q00211041A-16-16	1"	97.9	64.5	A+B-32,7	ø52	41	41
31.5	1.1/4"	-20	Q00811041A-20-20	Q00211041A-20-20	1.1/4"	118	75	A+B-43	ø69	50	50
40	1.1/2"	-24	Q00811041A-24-24	Q00211041A-24-24	1.1/2"	133	84	A+B-49	ø83	60	60
51	2"	-32	Q00811041A-32-32	Q00211041A-32-32	2"	164	104	A+B-60,2	ø100	75	75



Q00811110A
Q00211110A

METRIC TERMINATION ENDS
TO ISO 8434-1
L SERIES

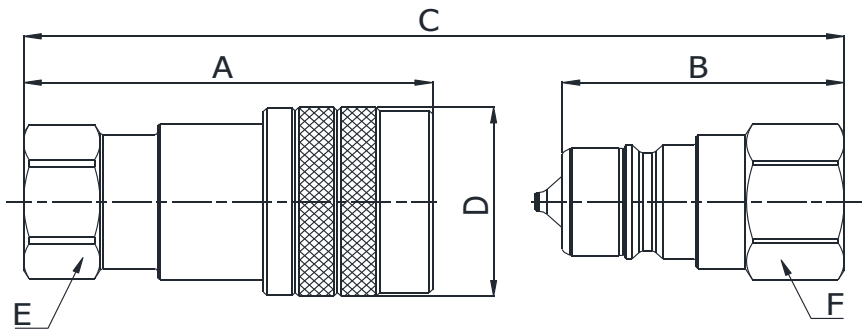
SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
6.3	1/4"	-04	Q00811110A-04-14	Q00211110A-04-14	M14x1,5	52.1	42	A+B-14,2	ø24	17	17
10	3/8"	-06	Q00811110A-06-12	Q00211110A-06-12	M12x1,5	61	52.5	A+B-17,5	ø30	22	22
10	3/8"	-06	Q00811110A-06-14	Q00211110A-06-14	M14x1,5	61	52.5	A+B-17,5	ø30	22	22
10	3/8"	-06	Q00811110A-06-16	Q00211110A-06-16	M16x1,5	61	52.5	A+B-17,5	ø30	22	22
10	3/8"	-06	Q00811110A-06-18	Q00211110A-06-18	M18x1,5	61	52.5	A+B-17,5	ø30	22	22
12.5	1/2"	-08	Q00811110A-08-14	Q00211110A-08-14	M14x1,5	65.2	54	A+B-21,8	ø38	27	27
12.5	1/2"	-08	Q00811110A-08-16	Q00211110A-08-16	M16x1,5	66.2	55	A+B-21,8	ø38	27	27
12.5	1/2"	-08	Q00811110A-08-18	Q00211110A-08-18	M18x1,5	65.2	54	A+B-21,8	ø38	27	27
12.5	1/2"	-08	Q00811110A-08-22	Q00211110A-08-22	M22x1,5	66.2	55	A+B-21,8	ø38	27	27
12.5	1/2"	-08	Q00811110A-08-26	Q00211110A-08-26	M26x1,5	66.2	55	A+B-21,8	ø38	27	27
20	3/4"	-12	Q00811110A-12-18	Q00211110A-12-18	M18x1,5	85.4	66.3	A+B-26,7	ø45	34	34
20	3/4"	-12	Q00811110A-12-22	Q00211110A-12-22	M22x1,5	85.7	66.3	A+B-26,7	ø45	34	34
20	3/4"	-12	Q00811110A-12-26	Q00211110A-12-26	M26x1,5	85.7	66.3	A+B-26,7	ø45	34	34
20	3/4"	-12	Q00811110A-12-30	Q00211110A-12-30	M30x2	87.7	68.3	A+B-26,7	ø45	34	34
25	1"	-16	Q00811110A-16-26	Q00211110A-16-26	M26x1,5	94.5	79.5	A+B-32,7	ø52	41	41
25	1"	-16	Q00811110A-16-30	Q00211110A-16-30	M30x2	96.5	81.5	A+B-32,7	ø52	41	41
25	1"	-16	Q00811110A-16-36	Q00211110A-16-36	M36x2	97	81.5	A+B-32,7	ø52	41	41



Q00811120A
Q00211120A

METRIC TERMINATION ENDS
TO ISO 8434-1
S SERIES

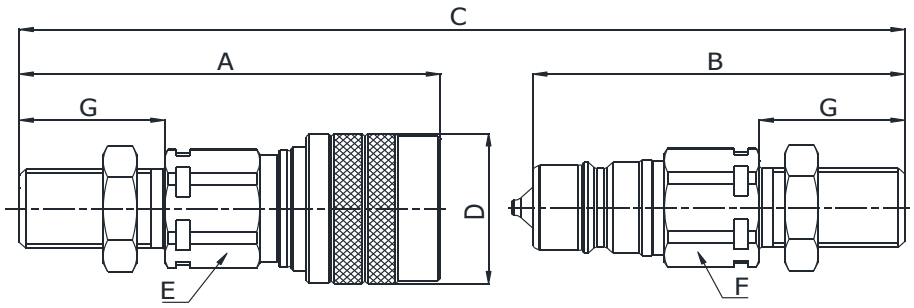
SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
10	3/8"	-06	Q00811120A-06-16	Q00211120A-06-16	M16x1,5	62	53.5	A+B-17,5	ø30	22	22
10	3/8"	-06	Q00811120A-06-18	Q00211120A-06-18	M18x1,5	62	53.5	A+B-17,5	ø30	22	22
12.5	1/2"	-08	Q00811120A-08-18	Q00211120A-08-18	M18x1,5	66.2	55	A+B-21,8	ø38	27	27
12.5	1/2"	-08	Q00811120A-08-20	Q00211120A-08-20	M20x1,5	66.2	55	A+B-21,8	ø38	27	27
12.5	1/2"	-08	Q00811120A-08-24	Q00211120A-08-24	M24x1,5	68.2	57	A+B-21,8	ø38	27	27
25	1"	-16	Q00811120A-16-30	Q00211120A-16-30	M30x2	98.5	83.5	A+B-32,7	ø52	41	41
25	1"	-16	Q00811120A-16-36	Q00211120A-16-36	M36x2	100.5	85.5	A+B-32,7	ø52	41	41
25	1"	-16	Q00811120A-16-42	Q00211120A-16-42	M40x2	102.5	87.5	A+B-32,7	ø52	46	46



Q00811191A
Q00211191A

METRIC TERMINATION ENDS
TO ISO 6149-1

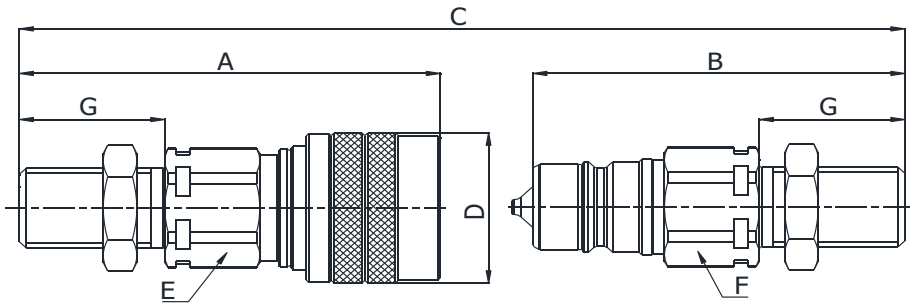
SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
12.5	1/2"	-08	Q00811191A-08-16	Q00211191A-08-16	M16x1,5	66.7	55.5	A+B-21,8	ø38	27	27
12.5	1/2"	-08	Q00811191A-08-18	Q00211191A-08-18	M18x1,5	68.2	57	A+B-21,8	ø38	27	27
12.5	1/2"	-08	Q00811191A-08-22	Q00211191A-08-22	M22x1,5	67	48	A+B-21,8	ø38	27	27



Q00811770B
Q00211770B

METRIC TERMINATION ENDS
TO ISO 8434-1
BULKHEAD L SERIES

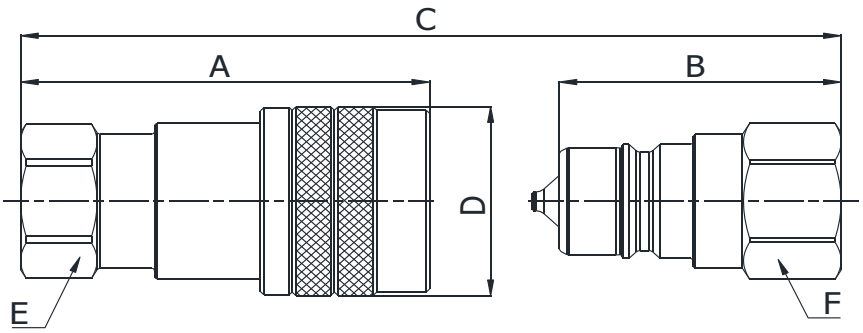
SIZE			PART NUMBER		THREAD	DIMENSIONS mm						
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F	G
10	3/8"	-06	Q00811770B-06-12	Q00211770B-06-12	M12x1,5	76	67.5	A+B-17,5	ø30	22	22	25
10	3/8"	-06	Q00811770B-06-14	Q00211770B-06-14	M14x1,5	75	66.5	A+B-17,5	ø30	22	22	25
10	3/8"	-06	Q00811770B-06-16	Q00211770B-06-16	M16x1,5	75	66.5	A+B-17,5	ø30	22	22	26
10	3/8"	-06	Q00811770B-06-18	Q00211770B-06-18	M18x1,5	75	66.5	A+B-17,5	ø30	22	22	26
12.5	1/2"	-08	Q00811770B-08-14	Q00211770B-08-14	M14x1,5	80.2	69	A+B-21,8	ø38	27	27	25
12.5	1/2"	-08	Q00811770B-08-16	Q00211770B-08-16	M16x1,5	80.2	69	A+B-21,8	ø38	27	27	26
12.5	1/2"	-08	Q00811770B-08-18	Q00211770B-08-18	M18x1,5	80.2	69	A+B-21,8	ø38	27	27	26
12.5	1/2"	-08	Q00811770B-08-22	Q00211770B-08-22	M22x1,5	81.2	70	A+B-21,8	ø38	27	27	27
12.5	1/2"	-08	Q00811770B-08-26	Q00211770B-08-26	M26x1,5	82.2	71	A+B-21,8	ø38	30	30	28
20	3/4"	-12	Q00811770B-12-22	Q00211770B-12-22	M22x1,5	100.7	81.3	A+B-26,7	ø45	34	34	27
20	3/4"	-12	Q00811770B-12-30	Q00211770B-12-30	M30x2	105.7	86.3	A+B-26.7	ø45	34	34	32
25	1"	-16	Q00811770B-16-26	Q00211770B-16-26	M26x1,5	110.5	92.3	A+B-32,7	ø52	41	41	28
25	1"	-16	Q00811770B-16-30	Q00211770B-16-30	M30x2	114.5	96.3	A+B-32,7	ø52	41	41	32
25	1"	-16	Q00811770B-16-36	Q00211770B-16-36	M36x2	114.5	96.3	A+B-32,7	ø52	41	41	32



Q00811870B
Q00211870B

METRIC TERMINATION ENDS
TO ISO 8434-1
BULKHEAD S SERIES

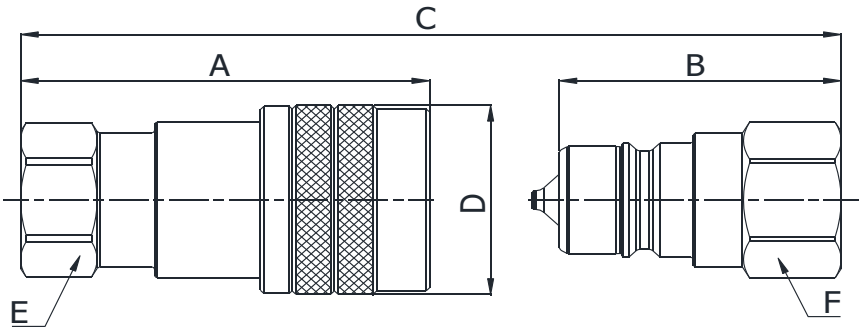
SIZE			PART NUMBER		THREAD	DIMENSIONS mm						
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F	G
10	3/8"	-06	Q00811870B-06-16	Q00211870B-06-16	M16x1,5	76	67.5	A+B-17,5	ø30	22	22	27
10	3/8"	-06	Q00811870B-06-18	Q00211870B-06-18	M18x1,5	76	67.5	A+B-17,5	ø30	22	22	27
12.5	1/2"	-08	Q00811870B-08-18	Q00211870B-08-18	M18x1,5	81.2	70	A+B-21,8	ø38	27	27	27
12.5	1/2"	-08	Q00811870B-08-20	Q00211870B-08-20	M20x1,5	81.2	70	A+B-21,8	ø38	27	27	27
12.5	1/2"	-08	Q00811870B-08-24	Q00211870B-08-24	M24x1,5	83.2	72	A+B-21,8	ø38	27	27	29
25	1"	-16	Q00811870B-16-30	Q00211870B-16-30	M30x2	116.5	101.5	A+B-32,7	ø52	41	41	34
25	1"	-16	Q00811870B-16-36	Q00211870B-16-36	M36x2	118.5	103.5	A+B-32,7	ø52	41	41	36
25	1"	-16	Q00811870B-16-42	Q00211870B-16-42	M40x2	120.5	105.5	A+B-32,7	ø52	41	41	40



Q00811141A
Q00211141A

METRIC TERMINATION ENDS
TO ISO 3852-1 X TYPE

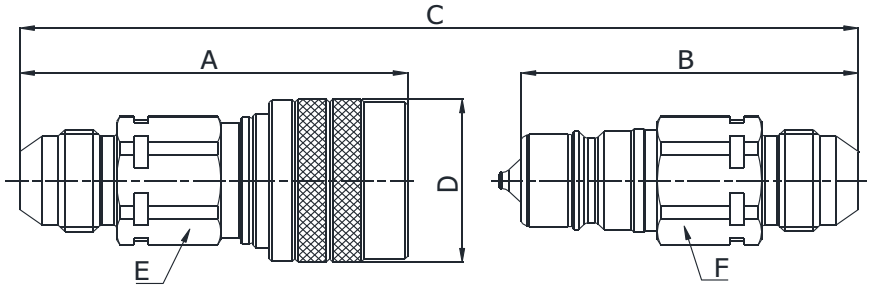
SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
10	3/8"	-06	Q00811141A-06-16	Q00211141A-06-16	M16x1,5	64.5	56	A+B-17,5	ø30	22	22
12.5	1/2"	-08	Q00811141A-08-18	Q00211141A-08-18	M18x1,5	66.2	55	A+B-21,8	ø38	27	27
12.5	1/2"	-08	Q00811141A-08-20	Q00211141A-08-20	M20x1,5	67	45	A+B-21,8	ø38	27	27
12.5	1/2"	-08	Q00811141A-08-22	Q00211141A-08-22	M22x1,5	67	48	A+B-21,8	ø38	27	27



Q00811341A
Q00211341A

NPTF TERMINATION ENDS
TO ANSI B 1.20.3

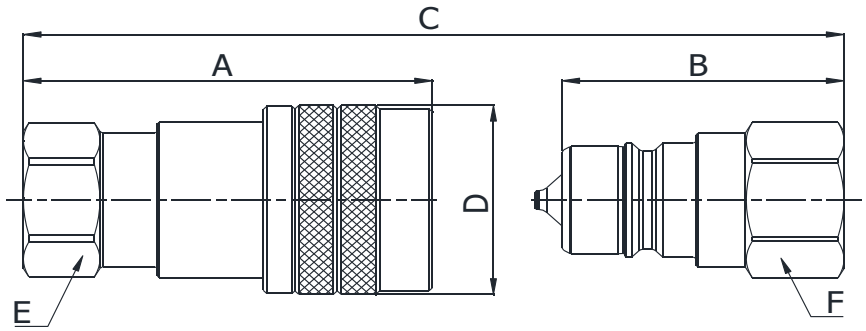
SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
6.3	1/4"	-04	Q00811341A-04-04	Q00211341A-04-04	1/4" NPTF	48.8	34.5	A+B-14,2	ø24	17	17
10	3/8"	-06	Q00811341A-06-06	Q00211341A-06-06	3/8" NPTF	57.8	40	A+B-17,5	ø30	22	22
10	3/8"	-06	Q00811341A-06-08	Q00211341A-06-08	1/2" NPTF	60.8	45	A+B-17,5	ø30	27	27
12.5	1/2"	-08	Q00811341A-08-08	Q00211341A-08-08	1/2" NPTF	67	45	A+B-21,8	ø38	27	27
12.5	1/2"	-08	Q00811341A-08-12	Q00211341A-08-12	3/4" NPTF	70	53	A+B-22	ø38	34	34
20	3/4"	-12	Q00811341A-12-12	Q00211341A-12-12	3/4" NPTF	83.5	56.5	A+B-26,7	ø45	34	34
25	1"	-16	Q00811341A-16-16	Q00211341A-16-16	1" NPTF	97.9	64.5	A+B-32,7	ø52	41	41
31.5	1.1/4"	-20	Q00811341A-20-20	Q00211341A-20-20	1.1/4" NPTF	118.0	75.0	A+B-43	ø69	50	50
40	1.1/2"	-24	Q00811341A-24-24	Q00211341A-24-24	1.1/2" NPTF	133.0	84.0	A+B-49	ø83	60	60



Q00811250A
Q00211250A

SAE TERMINATION ENDS
TO ISO 8434-2

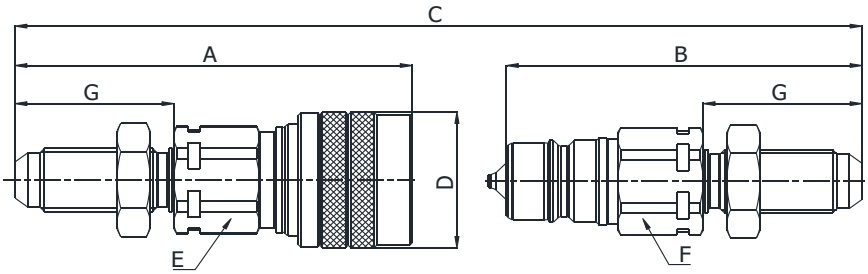
SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
10	3/8"	-06	Q00811250A-06-08	Q00211250A-06-08	3/4"-16 UNF	67	58.2	A+B-18,1	ø30	22	22



Q00811301A
Q00211301A

SAE TERMINATION ENDS
TO SAE J1926-1

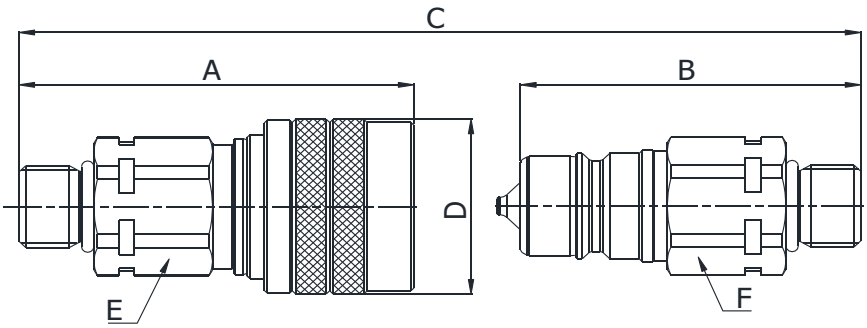
SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
6.3	1/4"	-04	Q00811301A-04-06	Q00211301A-04-06	9/16"-18 UNF	50	34.5	A+B-14,2	ø24	17	17
10	3/8"	-06	Q00811301A-06-06	Q00211301A-06-06	9/16"-18 UNF	64.5	56	A+B-17,5	ø30	22	22
12.5	1/2"	-08	Q00811301A-08-08	Q00211301A-08-08	3/4"-16 UNF	67	45	A+B-21,8	ø38	27	27
12.5	1/2"	-08	Q00811301A-08-10	Q00211301A-08-10	7/8"-14 UNF	69	50	A+B-21,8	ø38	27	27
12.5	1/2"	-08	Q00811301A-08-12	Q00211301A-08-12	1-1/16"-12 UN	73	54	A+B-21,8	ø38	34	34



Q00811230A
Q00211230A

SAE TERMINATION ENDS
TO ISO 8434-2
BULKHEAD

SIZE			PART NUMBER		THREAD	DIMENSIONS mm						
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F	G
10	3/8"	-06	Q00811230A-06-06	Q00211230A-06-06	9/16"-18 UNF	83.8	75	A+B-18	ø30	22	22	22
10	3/8"	-06	Q00811230A-06-10	Q00211230A-06-10	7/8"-14 UNF	91.3	79.6	A+B-17,5	ø30	27	27	41
12.5	1/2"	-08	Q00811230A-08-08	Q00211230A-08-08	3/4"-16 UNF	91.8	80.6	A+B-21,8	ø38	27	27	36.6
12.5	1/2"	-08	Q00811230A-08-10	Q00211230A-08-10	7/8"-14 UNF	95.3	84.1	A+B-21,8	ø38	27	27	40.1

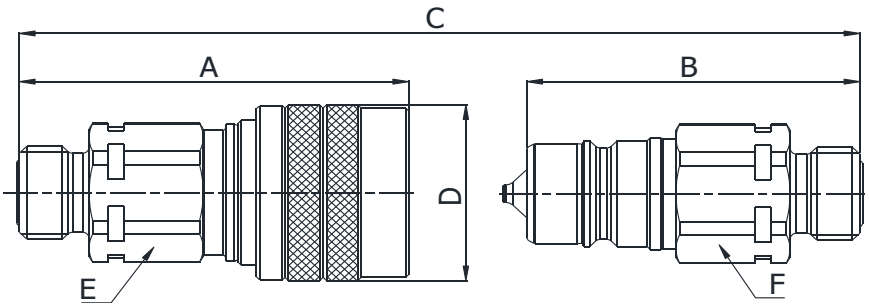


Q00811320A
Q00211320A

ORB TERMINATION ENDS
TO SAE J1926-2
S SERIES

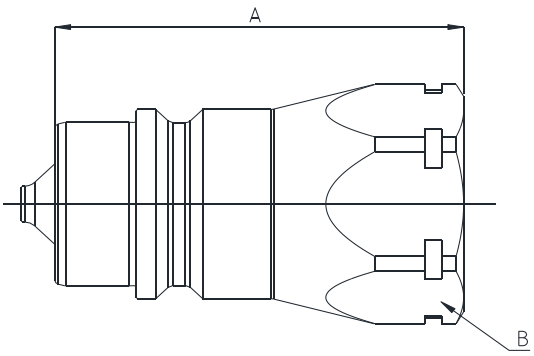
SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
10	3/8"	-06	Q00811320A-06-06	Q00211320A-06-06	9/16"-18 UNF	63	54.4	A+B-17,5	ø30	22	22
12.5	1/2"	-08	Q00811320A-08-08	Q00211320A-08-08	3/4"-16 UNF	70	60	A+B-21,8	ø38	27	27

Q00811240A
Q00211240A



ORFS TERMINATION ENDS
TO ISO 8434-3

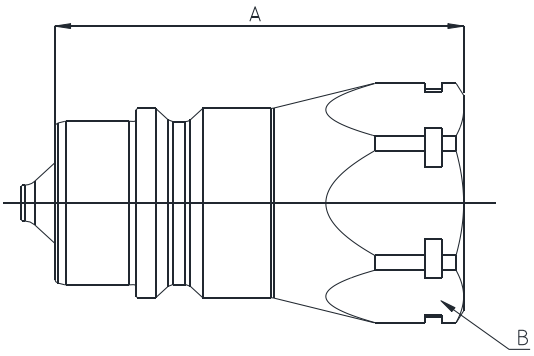
SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
10	3/8"	-06	Q00811240A-06-04	Q00211240A-06-04	9/16"-18 UNF	60.8	52.3	A+B-17,5	ø30	22	22
10	3/8"	-06	Q00811240A-06-06	Q00211240A-06-06	11/16"-16 UN	61.2	52.7	A+B-17,5	ø30	22	22
12.5	1/2"	-08	Q00811240A-08-08	Q00211240A-08-08	13/16"-16 UN	66.2	55.8	A+B-21,8	ø38	27	27
25	1"	-16	Q00811240A-16-16	Q00211240A-16-16	1.7/16"-12 UN	100	81.8	A+B-32,7	ø52	41	41



Q00411041A

BSP TERMINATION ENDS
TO DIN 3852 X TYPE

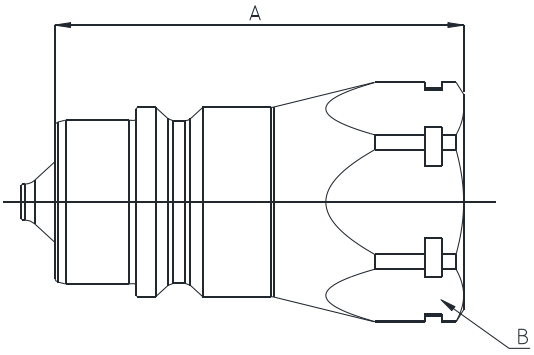
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B				
12.5	1/2"	08	Q00411041A-08-08	1/2"	47	27				



Q00411341A

NPTF TERMINATION ENDS
TO ANSI B 1.20.3

SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B				
12.5	1/2"	08	Q00411341A-08-08	1/2" NPTF	47	27				



Q00411301A

SAE TERMINATION ENDS
TO SAE J1926-1

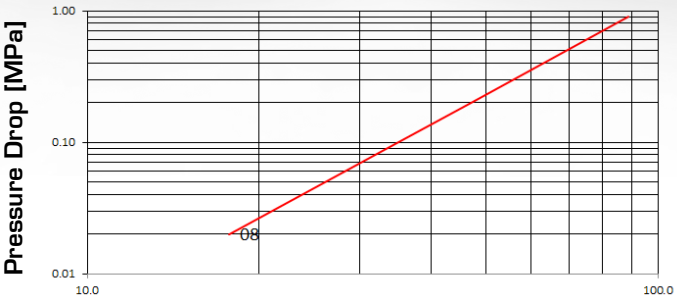
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B				
12.5	1/2"	08	Q00411301A-08-08	3/4" UNF	47	27				

manuli HYDRAULICS

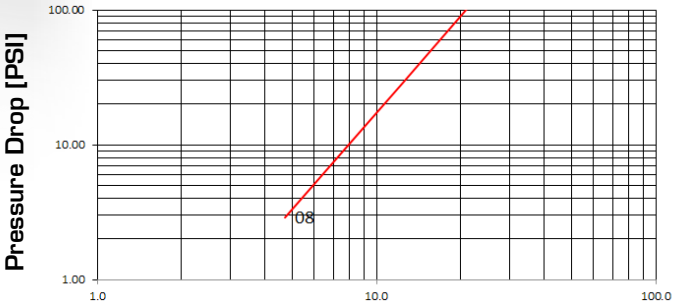
ISO A BALL VALVES



Pressure Drop



Pressure Drop



TECHNICAL DATA

SIZE			WORKING PRESSURE (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		CONNECTION EFFORT		OIL SPILLAGE Connection/ Disconnection		MINIMUM BURST PRESSURE						CONNECTION/ DISCONNECTION UNDER PRESSURE
											Male		Female		M & F		
DN	inch	Dash	MPa	PSI	l/min	US GPM	N	lb.	cc.	cubic inch	MPa	PSI	MPa	PSI	MPa	PSI	
12.5	½	08	21	3045	47	12.4	65	144	1.6	0.098	85	12325	100	14500	150	21750	NOT ALLOWED

The rated flow represents the normal operating condition. The maximum recommended flow rate is equal to 1.5 times the rated flow

PRODUCT DESCRIPTION

- Simple connection and disconnection by pulling back the sleeve
- Positive, quick connection of the male into the female by the latching ball system
- Shut-off by ball valve
- High resistant materials and hardened male and sleeve to withstand the brinelling effect
- Interchangeability according to ISO 7241 series A

MATERIAL

Female couplings in steel, with some hardened areas, in correspondence to the most stressed points. Male couplings in high grade carbon steel. Springs in C98 steel, seals in NBR (other materials on request) and back-up ring in PTFE

WORKING TEMPERATURE

-22°F up to +230°F (-30°C up to +110°C)
For other temperatures, the coupling may be assembled with the specific seals

SAFETY FACTOR

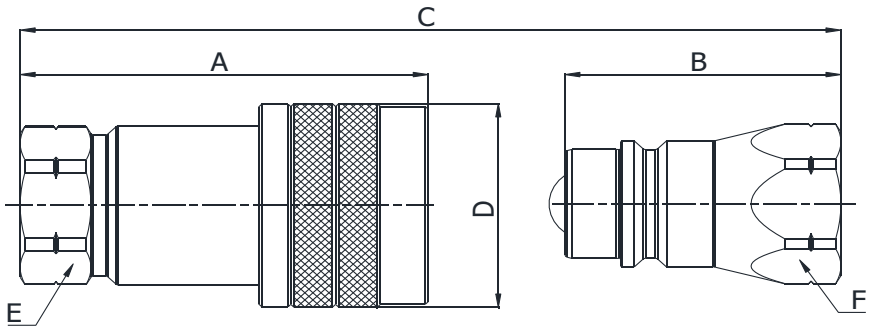
4:1 for dynamic pressures

IMPULSE PRESSURES

100,000 cycles at 133% of the rated one (freq. 1Hz)

TEST SPECIFICATIONS

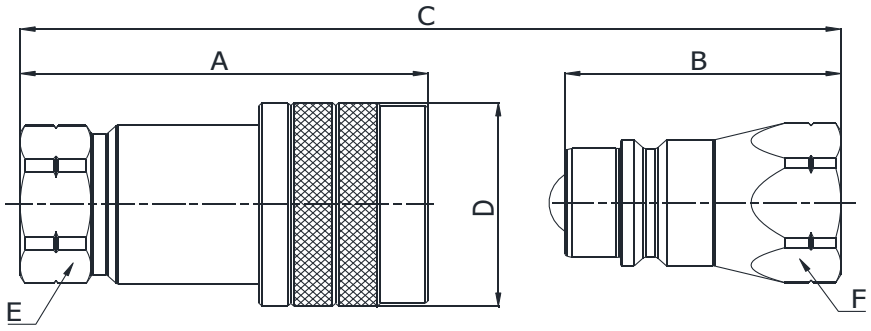
ISO 18869



Q00911041A
Q00311041A

BSP TERMINATION ENDS
TO DIN 3852

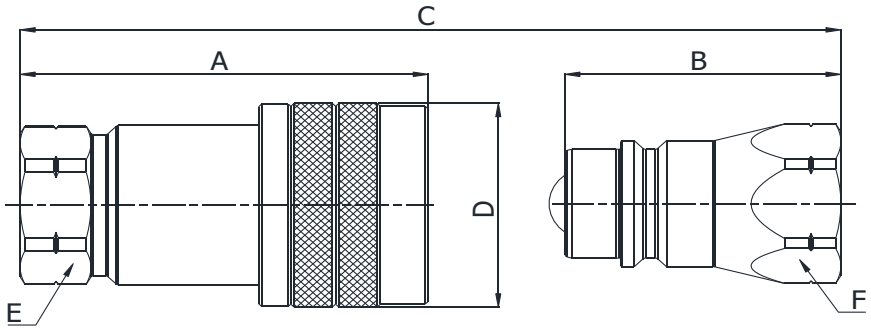
SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
12.5	1/2"	-08	Q00911041A-08-08	Q00310041A-08-08	1/2"	68.2	46.2	A+B-21,8	ø38	27	27



Q00911341A
Q00310341A

NFTS TERMINATION ENDS
TO ANSI B 1.20.3

SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
12.5	1/2"	-08	Q00911341A-08-08	Q00310341A-08-08	1/2" NPTF	68.2	46.2	A+B-21,8	ø38	27	27



Q00911301A
Q00310301A

SAE TERMINATION ENDS
TO SAE J1926-1

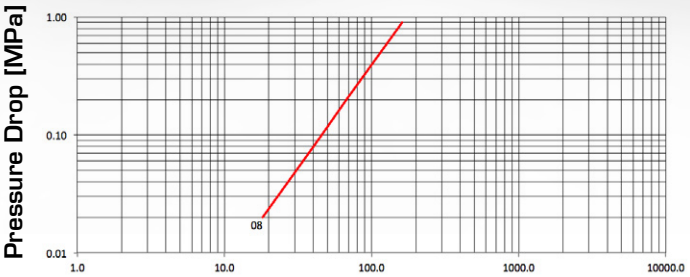
SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
12.5	1/2"	-08	Q00911301A-08-08	Q00310301A-08-08	3/4"-16 UNF	67	45	A+B-21,8	ø38	27	27

manuli® HYDRAULICS

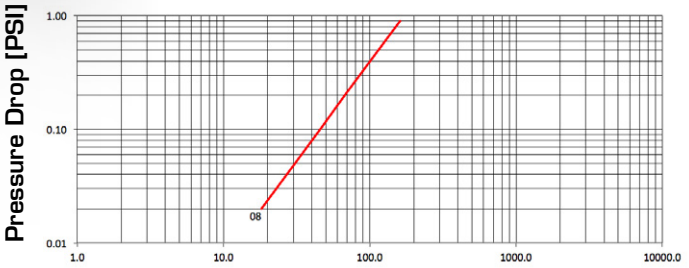


ISO A CONNECTABLE UNDER PRESSURE

Pressure Drop



Pressure Drop



TECHNICAL DATA

SIZE			WORKING PRESSURE (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		CONNECTION EFFORT		OIL SPILLAGE Connection/ Disconnection		MINIMUM BURST PRESSURE						CONNECTION/ DISCONNECTION UNDER PRESSURE
											Male		Female		M & F		
DN	inch	Dash	MPa	PSI	l/min	US GPM	N	lb.	cc.	cubic inch	MPa	PSI	MPa	PSI	MPa	PSI	
12.5	½	08	30	4350	68	18.0	80	178	2 With 0 MPa pressure	0.122	120	17400	120	17400	160	23200	Only connection

The rated flow represents the normal operating condition. The maximum recommended flow rate is equal to 1.5 times the rated flow

PRODUCT DESCRIPTION

- Connectable under pressure thanks to a frontal micro-valve
- Connection and disconnection is possible by pulling back the sleeve
- Positive, quick connection of the male into the female by the latching ball system
- Shut-off by poppet valve
- High resistant materials
- Connectability at the maximum working pressure
- Interchangeable according to ISO 7241 series A

MATERIAL

Female couplings in steel, with some hardened areas, in correspondence to the most stressed points. Male couplings in high grade carbon steel. Springs in C98 steel, seals in NBR and polyurethane (other materials on request) and back-up ring in PTFE. PU seal on ½" female available on request.

WORKING TEMPERATURE

-22°F up to +230°F (-30°C up to +110°C)
For other temperatures, the coupling may be assembled with the specific seals

SAFETY FACTOR

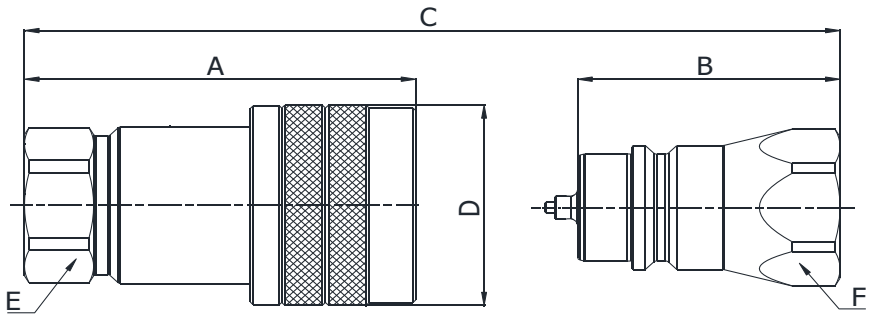
4:1 for dynamic pressures

IMPULSE PRESSURES

100,000 cycles at 133% of the rated one (freq. 1Hz)

TEST SPECIFICATIONS

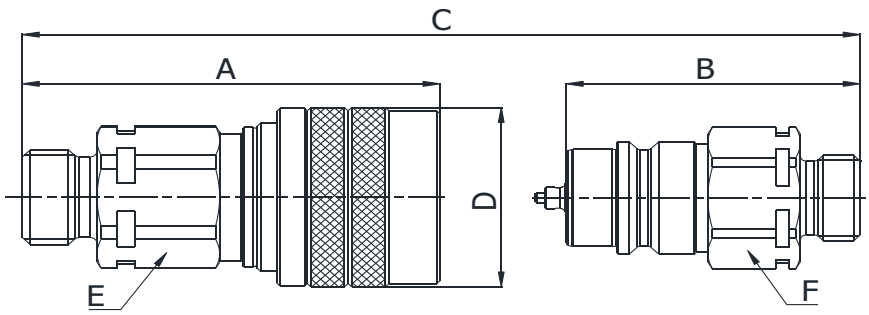
ISO 18869



Q01011041A
Q00611041A

BSP TERMINATION ENDS
TO DIN 3852 X TYPE

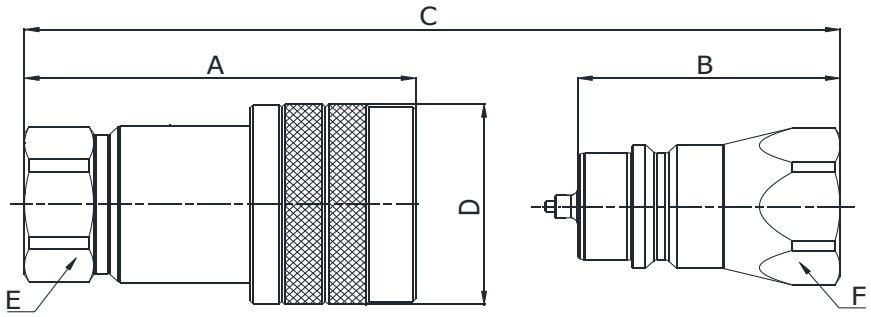
SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
12.5	1/2"	-08	Q01011041A-08-08	Q00611041A-08-08	1/2"	67	45	A+B-21,8	ø38	27	27



Q01011110A
Q00611110A

METRIC TERMINATION END
TO ISO 8434-1
L SERIES

SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
12.5	1/2"	-08	Q01011110A-08-18	Q00611110A-08-18	M18x1,5	65.2	54	A+B-21,8	ø38	27	27



Q01011341A
Q00611341A

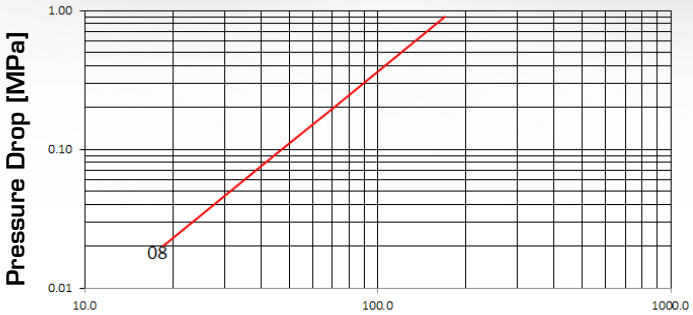
NPTF TERMINATION END
TO ANSI B 1.20.3

SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
12.5	1/2"	-08	Q01011341A-08-08	Q00611341A-08-08	1/2" NPTF	67	45	A+B-21,8	ø38	27	27

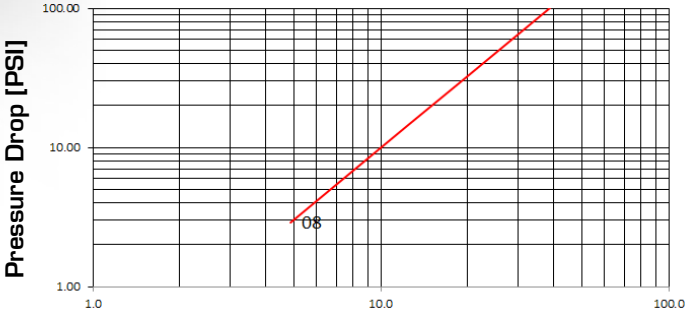
ISO A MALE CONNECTABLE UNDER PRESSURE



Pressure Drop



Pressure Drop



TECHNICAL DATA

SIZE			WORKING PRESSURE (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		CONNECTION EFFORT		OIL SPILLAGE Connection/ Disconnection		MINIMUM BURST PRESSURE						CONNECTION/ DISCONNECTION UNDER PRESSURE
											Male		Female		M & F		
DN	inch	Dash	MPa	PSI	l/min	US GPM	N	lb.	cc.	cubic inch	MPa	PSI	MPa	PSI	MPa	PSI	
12.5	½	08	30	4350	71	18.8	80	178	2	0.122	-	-	125	18125	125	18125	Connection only, with male under pressure

The rated flow represents the normal operating condition. The maximum recommended flow rate is equal to 1.5 times the rated flow

PRODUCT DESCRIPTION

- Connectable with male ISO A under pressure
- High working pressure 30MPa
- Simple connection and disconnection by pulling back the sleeve
- No shut-off, Manuli mechanical valve block system
- Installations on hoses, pipe and direct to port
- Wide range of termination ends
- Interchangeability according to ISO 7241 series A

MATERIAL

Female couplings in steel, with some hardened areas, in correspondence to the most stressed points. Carbonitrided valve, and sleeve, springs in C98 steel, seals in NBR (other materials on request) and back-up ring in PTFE. PU seal on ½" female available on request.

WORKING TEMPERATURE

-22°F up to +230°F (-30°C up to +110°C)
For other temperatures, the coupling may be assembled with the specific seals

SAFETY FACTOR

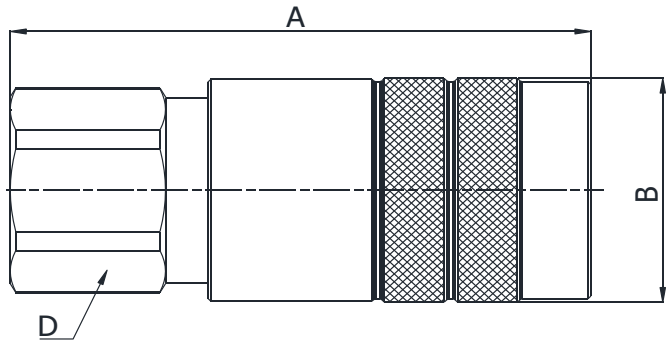
4:1 for dynamic pressures

IMPULSE PRESSURES

500,000 cycles (connected and disconnected conditions) at 120% of the rated one (freq. 1Hz)

TEST SPECIFICATIONS

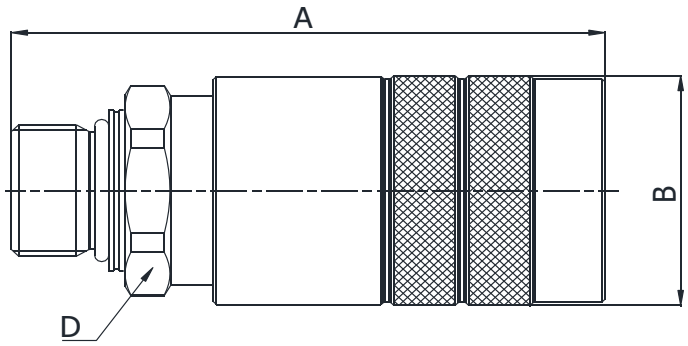
ISO 18869



Q01111041A

BSP TERMINATION ENDS
TO DIN 3852 X TYPE

SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	D			
12.5	1/2"	-08	Q01111041A-08-08	1/2"	91.7	ø38,3	32			

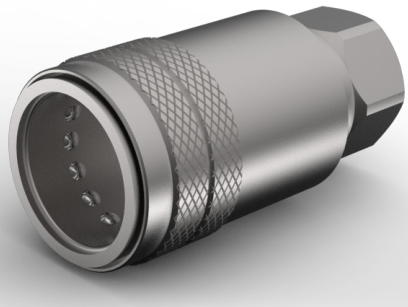


Q01111190A

METRIC TERMINATION ENDS
TO ISO 6149-1

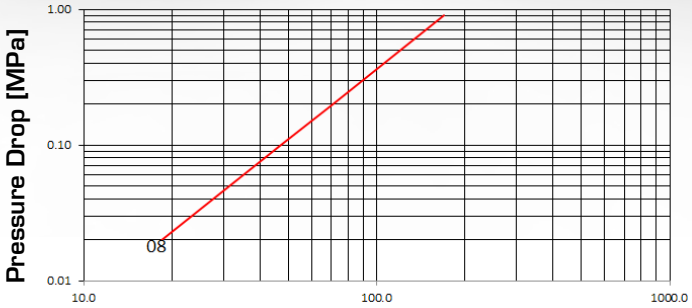
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	D			
12.5	1/2"	-08	Q01111190A-08-22	M22x1,5	91.2	ø38,3	32			

manuli® HYDRAULICS

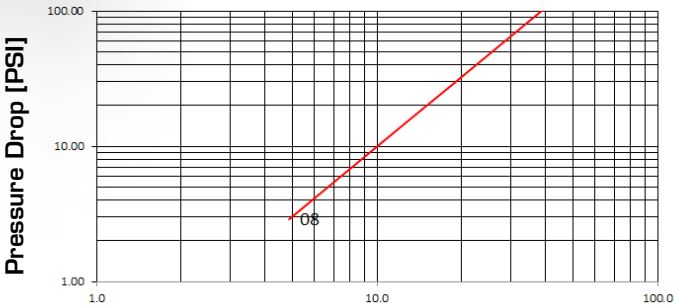


ISO A
BOTH PARTS CONNECTABLE UNDER PRESSURE

Pressure Drop



Pressure Drop



TECHNICAL DATA

SIZE			WORKING PRESSURE (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		CONNECTION EFFORT		OIL SPILLAGE Connection/ Disconnection		MINIMUM BURST PRESSURE						CONNECTION/ DISCONNECTION UNDER PRESSURE
											Male		Female		M & F		
DN	inch	Dash	MPa	PSI	l/min	US GPM	N	lb.	cc.	cubic inch	MPa	PSI	MPa	PSI	MPa	PSI	
12.5	½	08	30	4350	71	18.8	80	178	2	0.122	-	-	125	18125	125	18125	Connection only, with male and female under pressure

The rated flow represents the normal operating condition. The maximum recommended flow rate is equal to 1.5 times the rated flow

PRODUCT DESCRIPTION

- Connectable with male (ISO A) and female under pressure
- High working pressure 30MPa
- Simple connection and disconnection by pulling back the sleeve
- No shut-off, Manuli mechanical valve block system
- Installations on hoses, pipe and direct to port
- Wide range of termination ends
- Interchangeable according to ISO 7241 series A

MATERIAL

Female couplings in steel, with some hardened areas, in correspondence to the most stressed points. Carbonitrided valves and sleeve, springs in C98 steel, seals in NBR and polyurethane (other materials on request) and back-up ring in PTFE. PU seal on ½" female available on request.

WORKING TEMPERATURE

-22°F up to +230°F (-30°C up to +110°C)
For other temperatures, the coupling may be assembled with the specific seals

SAFETY FACTOR

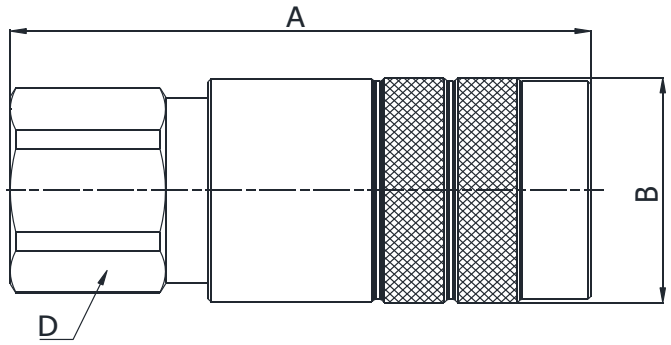
4:1 for dynamic pressures

IMPULSE PRESSURES

500,000 cycles (connected and disconnected conditions) at 120% of the rated one (freq. 1Hz)

TEST SPECIFICATIONS

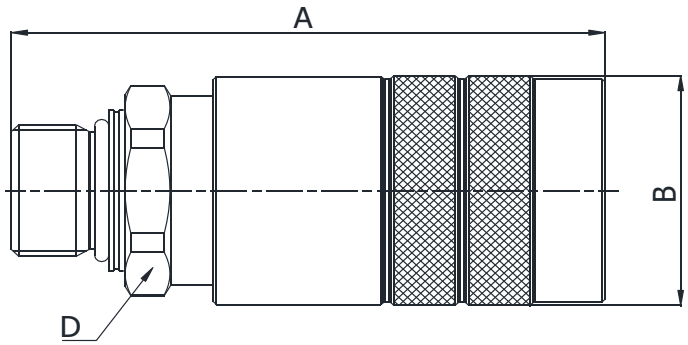
ISO 18869



Q01211041A

BSP TERMINATION ENDS
TO DIN3852

SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	D			
12.5	1/2"	-08	Q01211041A-08-08	1/2"	93.6	ø38,3	32			



Q01211190A

METRIC TERMINATION ENDS
TO ISO 6149-2

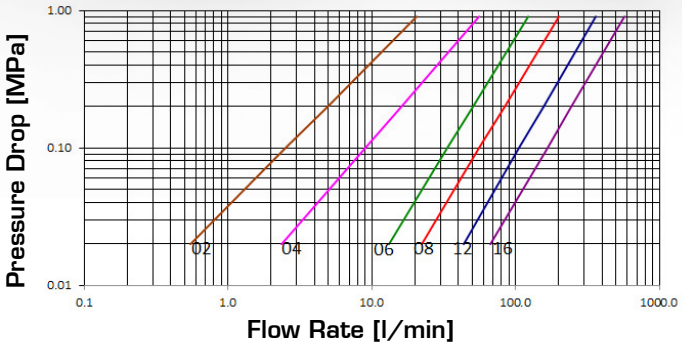
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	D			
12.5	1/2"	-08	Q01211190A-08-22	M22x1,5	93.1	ø38,3	32			

manuli HYDRAULICS

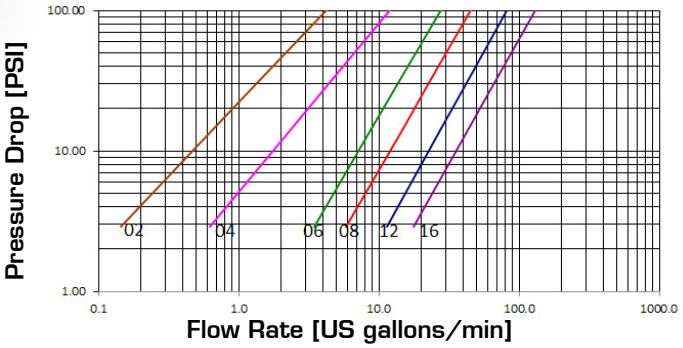
ISO B POPPET VALVES



Pressure Drop



Pressure Drop



TECHNICAL DATA

SIZE			WORKING PRESSURE (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		CONNECTION EFFORT		OIL SPILLAGE Connection/ Disconnection		MINIMUM BURST PRESSURE						CONNECTION/ DISCONNECTION UNDER PRESSURE
											Male		Female		M & F		
DN	inch	Dash	MPa	PSI	l/min	US GPM	N	lb.	cc.	cubic inch	MPa	PSI	MPa	PSI	MPa	PSI	
5	⅛	02	50	7250	5	1.3	40	9.0	0.5	0.031	210	30450	270	39150	220	31900	Not allowed
6.3	¼	04	40	5800	16	4.3	40	9.0	0.8	0.049	180	26100	190	27550	165	23925	Not allowed
10	⅜	06	35	5075	51	13.5	40	9.0	1.5	0.092	145	21025	160	23200	160	23200	Not allowed
12.5	½	08	35	5075	84	22.0	70	15.7	2.5	0.153	145	21025	145	21025	160	23200	Not allowed
20	¾	12	25	3625	156	41.5	90	20.2	8.5	0.519	100	14500	100	14500	125	18125	Not allowed
25	1	16	25	3625	246	65.0	90	20.2	15.0	0.915	100	14500	100	14500	120	17400	Not allowed

The rated flow represents the normal operating condition. The maximum recommended flow rate is equal to 1.5 times the rated flow

PRODUCT DESCRIPTION

- Reference series for all industrial applications
- Simple connection and disconnection by pulling back the sleeve
- Positive, quick connection of the male into the female by latching the ball system
- Shut-off by poppet valve
- High resistant materials
- Interchangeable according to ISO 7241 series B

MATERIAL

Female couplings in steel, with some hardened areas, in correspondence to the most stressed points. Male couplings in high grade carbon steel hardened. Springs in C98 steel, seals in NBR (other materials on request) and back-up ring in PTFE

WORKING TEMPERATURE

-22°F up to +230°F (-30°C up to +110°C)
For other temperatures, the coupling may be assembled with the specific seals

SAFETY FACTOR

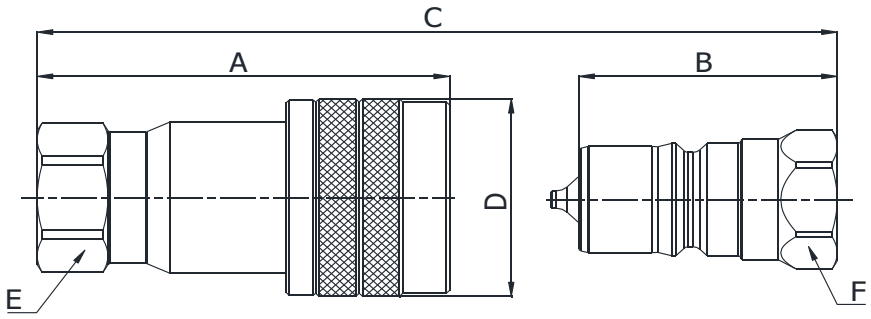
4:1 for dynamic pressures

IMPULSE PRESSURES

100,000 cycles at 133% of the rated one (freq. 1Hz)

TEST SPECIFICATIONS

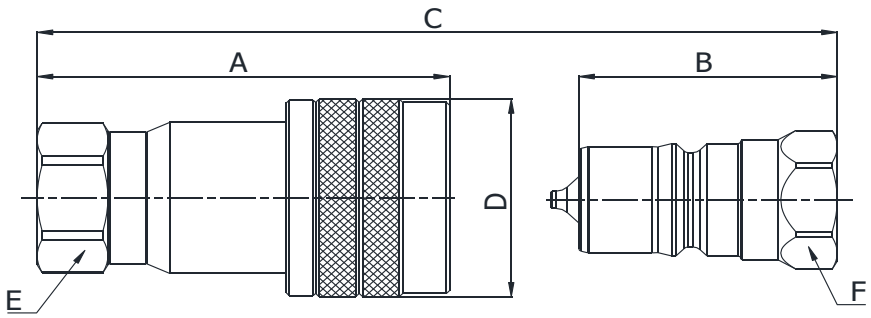
ISO 18869



Q02411041A
Q02111041A

BSP TERMINATION ENDS
TO DIN 3852 X TYPE

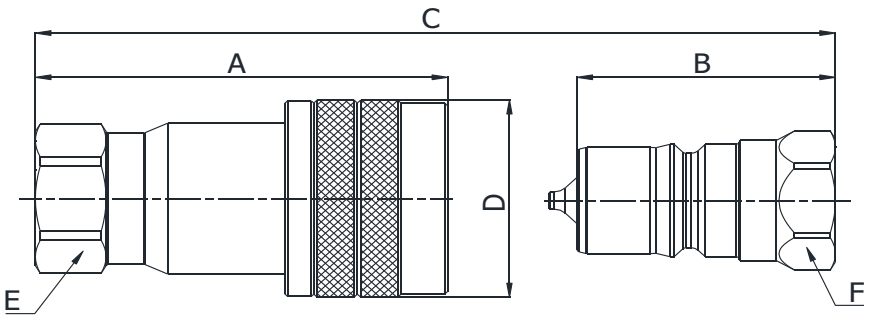
SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
5	1/8"	-02	Q02411041A-02-02	Q02111041A-02-02	1/8"	48.5	30	A+B-18,7	ø22	15	14
6.3	1/4"	-04	Q02411041A-04-04	Q02111041A-04-04	1/4"	58.8	37.2	A+B-21,2	ø28	19	19
10	3/8"	-06	Q02411041A-06-06	Q02111041A-06-06	3/8"	66.2	41.5	A+B-24,4	ø35	24	22
12.5	1/2"	-08	Q02411041A-08-08	Q02111041A-08-08	1/2"	74	46.5	A+B-27,2	ø42	30	27
20	3/4"	-12	Q02411041A-12-12	Q02111041A-12-12	3/4"	91	56.5	A+B-34,2	ø52	36	36
25	1"	-16	Q02411041A-16-16	Q02111041A-16-16	1"	104	64.5	A+B-39,2	ø60	41	41



Q02411341A
Q02111341A

NPTF TERMINATION END
TO ANSI B 1.20.3

SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
5	1/8"	-02	Q02411341A-02-02	Q02111341A-02-02	1/8" NPTF	48.5	30	A+B-18,7	ø22	15	14
6.3	1/4"	-04	Q02411341A-04-04	Q02111341A-04-04	1/4" NPTF	58.8	37.2	A+B-21,2	ø28	19	19
10	3/8"	-06	Q02411341A-06-06	Q02111341A-06-06	3/8" NPTF	66.2	41.5	A+B-24,4	ø35	24	22
12.5	1/2"	-08	Q02411341A-08-08	Q02111341A-08-08	1/2" NPTF	74	46.5	A+B-27,2	ø42	30	27
20	3/4"	-12	Q02411341A-12-12	Q02111341A-12-12	3/4" NPTF	91	56.5	A+B-34,2	ø52	36	36
25	1"	-16	Q02411341A-16-16	Q02111341A-16-16	1" NPTF	104	64.5	A+B-39,2	ø60	41	41



Q02411301A
Q02111301A

SAE TERMINATION ENDS
TO SAE J1926-1

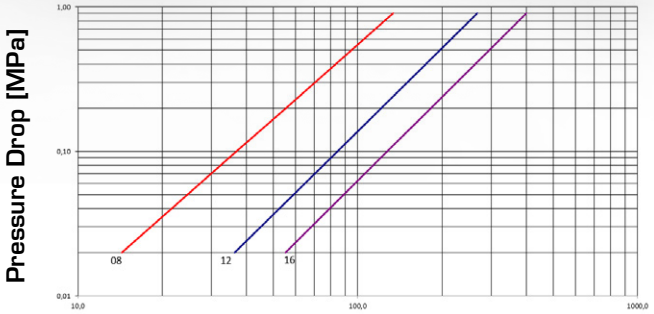
SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
6.3	1/4"	-04	Q02411301A-04-06	Q02111301A-04-06	9/16"-18UNF	62.2	40.6	A+B-21,2	ø28	19	19
10	3/8"	-06	Q02411301A-06-08	Q00211301A-06-08	3/4"-16 UNF	68.2	46	A+B-24,4	ø35	24	24
12.5	1/2"	-08	Q02411301A-08-08	Q02111301A-08-08	3/4"-16 UNF	74	46.5	A+B-27,2	ø42	30	27
20	3/4"	-12	Q02411301A-12-12	Q02111301A-12-12	1"1/16-12 UN	94	59.5	A+B-34,2	ø52	36	34
25	1"	-16	Q02411301A-16-16	Q02111301A-16-16	1"5/16-12 UN	104	64.5	A+B-39,2	ø60	41	41

manuli® HYDRAULICS

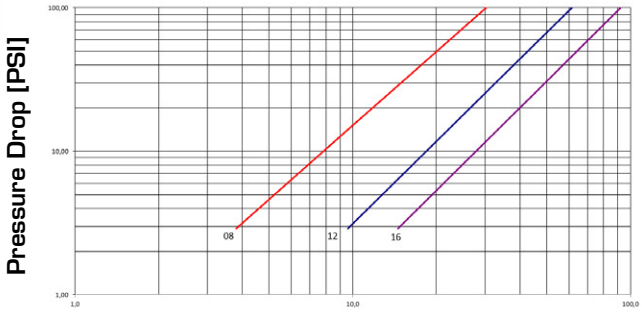
ISO B FOR DRILLING BOP UNITS



Pressure Drop



Pressure Drop



TECHNICAL DATA

SIZE			WORKING PRESSURE (Connected)		WORKING PRESSURE (Disconnected)		RATED FLOW at 0.2 MPa of pressure drop		CONNECTION EFFORT		OIL SPILLAGE Connection/ Disconnection		MINIMUM BURST PRESSURE						CONNECTION/ DISCONNECTION UNDER PRESSURE
													Male		Female		M & F		
DN	inch	Dash	MPa	PSI	MPa	PSI	l/min	US GPM	N	lb.	cc.	cubic inch	MPa	PSI	MPa	PSI	MPa	PSI	
12.5	½	08	42	6090	35	5075	55	14.6	70	156	2.5	0.153	140	20300	140	20300	180	26100	Not allowed
20	¾	12	35	5075	25	3625	122	32.1	90	200	8.5	0.519	100	14500	100	14500	150	21750	Not allowed
25	1	16	35	5075	25	3625	183	48.3	90	200	15	0.916	100	14500	100	14500	140	20300	Not allowed

The rated flow represents the normal operating condition. The maximum recommended flow rate is equal to 1.5 times the rated flow

PRODUCT DESCRIPTION

- MQS-B BOP VERSION is designed for BOP (Blow-out preventer) service in Oil & Gas Industry
- Simple connection & disconnection by pulling back the sleeve
- Safety system on the female part to avoid accidental disconnection
- Positive quick connection of the male into the female by latching ball system
- Poppet valve sealing system that guarantee high sealing performance at low & high pressure
- ECOAT zinc plating with improved corrosion protection and environmentally friendly process
- Female & Male Coupling with red identification for an easy visual verification
- ISO 7241 series B interchangeable
- API 16D approval.

MATERIAL

Female & male couplings in high grade carbon steel with hardened areas in correspondence to the mist stressed points. Seal in Viton with back-up in PTFE.

WORKING TEMPERATURE

-25°C to +200°C

SAFETY FACTOR

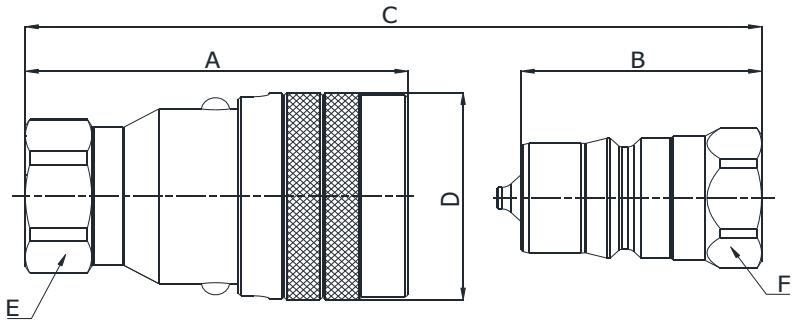
4:1 in CONNECTED & DISCONNECTED conditions

IMPULSE PRESSURES

100,000 cycles at 133% of the rated one (freq. 1Hz)

TEST SPECIFICATIONS

ISO 18869 , Flame resistance test to API 16D



Q02613341F
Q02113341F

NPTF TERMINATION ENDS
TO ANSI B1.20.3

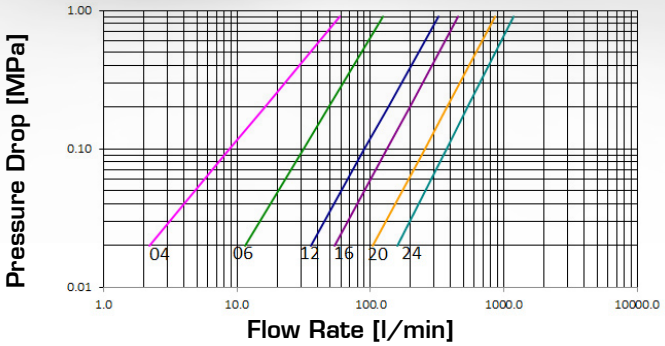
SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
12.5	1/2"	-08	Q02613341F-08-08	Q02113341F-08-08	1/2" NPTF	74	46.5	A+B-27,2	ø44	30	27
20	3/4"	-12	Q02613341F-12-12	Q02113341F-12-12	3/4" NPTF	91	56.5	A+B-34,2	ø54	36	34
25	1"	-16	Q02613341F-16-16	Q02113341F-16-16	1" NPTF	104	64.5	A+B-39,2	ø64	46	41

manuli HYDRAULICS

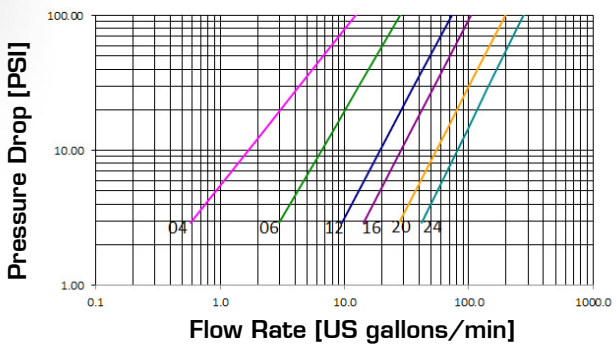
STANDARD POPPET VALVES



Pressure Drop



Pressure Drop



TECHNICAL DATA

SIZE			WORKING PRESSURE (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		CONNECTION EFFORT		OIL SPILLAGE Connection/ Disconnection		MINIMUM BURST PRESSURE						CONNECTION/ DISCONNECTION UNDER PRESSURE
											Male		Female		M & F		
DN	inch	Dash	MPa	PSI	l/min	US GPM	N	lb.	cc.	cubic inch	MPa	PSI	MPa	PSI	MPa	PSI	
6.3	¼	04	35	5075	16	4.2	40	89	0.8	0.049	190	27550	190	27550	140	20300	Not allowed
10	⅜	06	35	5075	49	12.9	65	144	1.3	0.079	150	21750	160	23200	160	23200	Not allowed
12.5	½	08	See ISO A Series														
20	¾	12	25	3625	135	35.7	80	178	7	0.427	110	15950	100	14500	120	17400	Not allowed
25	1	16	25	3625	196	51.8	90	200	11	0.672	100	14500	110	15950	120	17400	Not allowed
31.5	1¼	20	22	3190	376	99.3	105	233	15	0.916	90	13050	90	13050	100	14500	Not allowed
40	1½	24	21	3045	536	141.6	115	256	24	1.465	85	12325	90	13050	100	14500	Not allowed

The rated flow represents the normal operating condition. The maximum recommended flow rate is equal to 1.5 times the rated flow

PRODUCT DESCRIPTION

- Historical series for the agriculture market
- Simple connection and disconnection by pulling back the sleeve
- Positive, quick connection of the male into the female by latching the ball system
- Shut-off by poppet valve
- High resistant materials
- Interchangeable with similar products available on the market (½" size according to ISO 7241-1 series A)

MATERIAL

Female couplings in steel, with some hardened areas, in correspondence to the most stressed points. Male couplings in high grade carbon steel hardened. Springs in C98 steel, seals in NBR (other materials on request) and back-up ring in PTFE

WORKING TEMPERATURE

-22°F up to +230°F (-30°C up to +110°C)
For other temperatures, the coupling may be assembled with the specific seals

SAFETY FACTOR

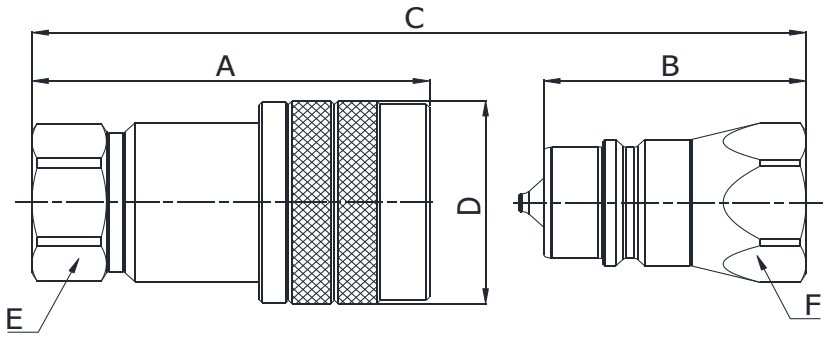
4:1 for dynamic pressures

IMPULSE PRESSURES

100,000 cycles at 133% of the rated one (freq. 1Hz)

TEST SPECIFICATIONS

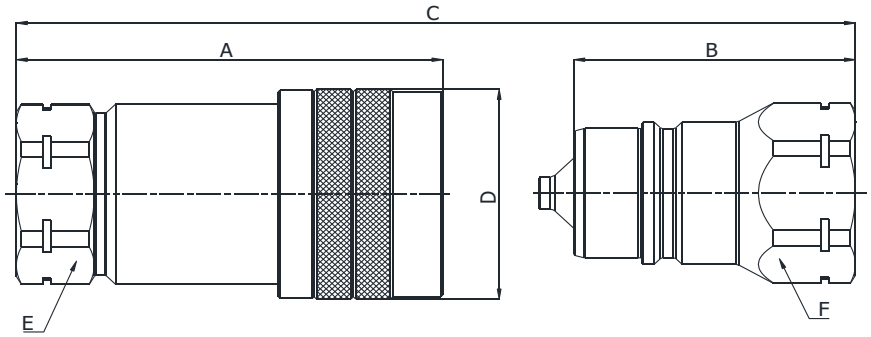
ISO 18869



Q03211041A
Q02911041A

BSP TERMINATION ENDS
TO DIN 3852 X TYPE

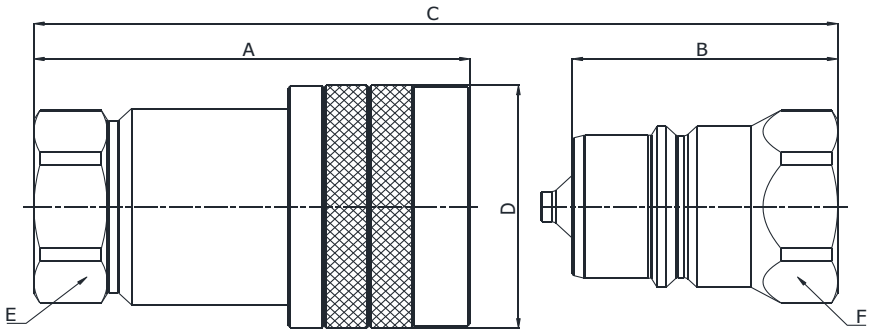
SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
6.3	1/4"	-04	Q03211041A-04-04	Q02911041A-04-04	1/4"	53.5	36.5	A+B-16,6	ø27	19	19
10	3/8"	-06	Q03211041A-06-06	Q02911041A-06-06	3/8"	60.5	40	A+B-20,1	ø34	24	24
12.5	1/2"	-08	SEE ISO SERIES A								
20	3/4"	-12	Q03211041A-12-12	Q02911041A-12-12	3/4"	85.5	56.5	A+B-28,3	ø47	34	34
25	1"	-16	Q03211041A-16-16	Q02911041A-16-16	1"	98	64.5	A+B-32,9	ø52	41	41
31.5	1.1/4"	-20	Q03211041A-20-20	Q02911041A-20-20	1.1/4"	119.5	78	A+B-41,5	ø68	50	50
40	1.1/2"	-24	Q03211041A-24-24	Q02911041A-24-24	1.2/2"	132	88	A+B-44,2	ø80	60	60



Q03211041B
Q02911041B

BSP TERMINATION ENDS
TO DIN 3852 X TYPE

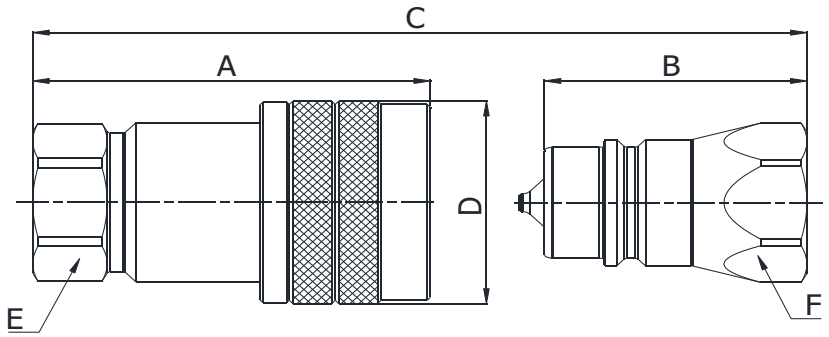
SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
20	3/4"	-12	Q03211041B-12-12	Q02911041B-12-12	3/4"	88	56.5	A+B-31	ø47	34	34
25	1"	-16	Q03211041B-16-16	Q02911041B-16-16	1"	98	64.5	A+B-32,9	ø52	41	41



Q03211041C
Q02911041C

BSP TERMINATION ENDS
TO DIN 3852 X TYPE

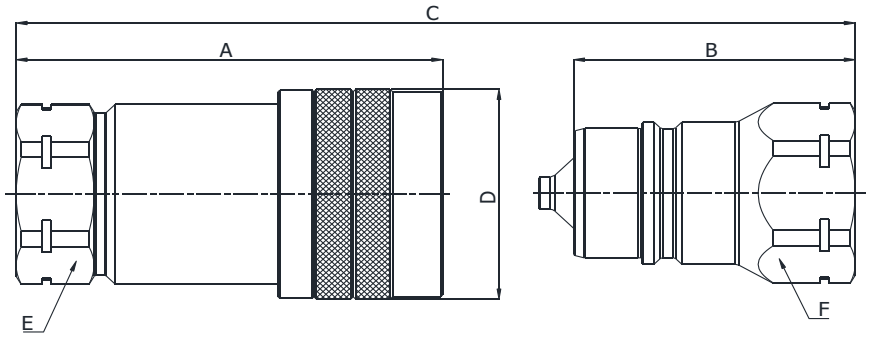
SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
25	1"	-16	Q03211041C-16-16	Q02911041C-16-16	1"	106	64.5	A+B-40,9	ø64,3	46	46



Q03211341A
Q02911341A

NPTF TERMINATION END
TO ANSI B 1.20.3

SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
6.3	1/4"	-04	Q03211341A-04-04	Q02911341A-04-04	1/4" NPTF	53.5	36.5	A+B-16,6	ø27	19	19
10	3/8"	-06	Q03211341A-06-06	Q02911341A-06-06	3/8" NPTF	60.5	40	A+B-20,1	ø34	24	24
12.5	1/2"	-08	SEE ISO SERIES A								
20	3/4"	-12	Q03211341A-12-12	Q02911341A-12-12	3/4" NPTF	85.5	56.5	A+B-28,3	ø47	34	34
25	1"	-16	Q03211341A-16-16	Q02911341A-16-16	1" NPTF	98	64.5	A+B-32,9	ø52	41	41
31.5	1.1/4"	-20	Q03211341A-20-20	Q02911341A-20-20	1.1/4"	119.5	78	A+B-41,5	ø68	50	50
40	1.1/2"	-24	Q03211341A-24-24	Q02911341A-24-24	1.2/2"	132	88	A+B-44,2	ø80	60	60



Q03211341B
Q02911341B

NPTF TERMINATION END
TO ANSI B 1.20.3

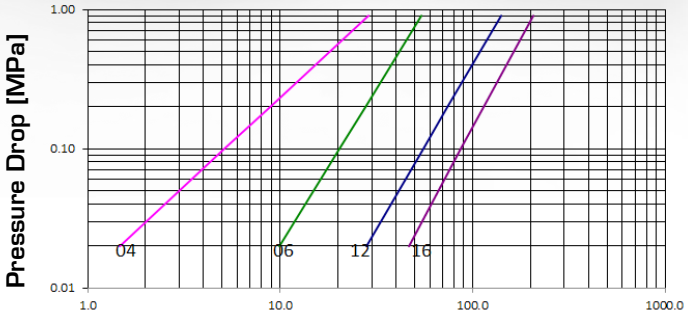
SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
20	3/4"	-12	Q03211341B-12-12	Q02911341B-12-12	3/4" NPTF	88	56.5	A+B-31	ø47	34	34
25	1"	-16	Q03211341B-16-16	Q02911341B-16-16	1" NPTF	98	64.5	A+B-32,9	ø52	41	41

manuli HYDRAULICS

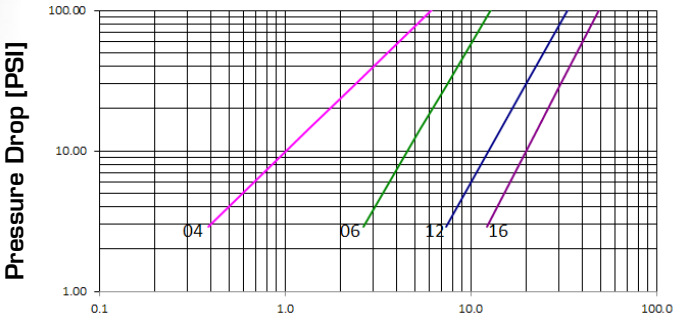
STANDARD BALL VALVES



Pressure Drop



Pressure Drop



TECHNICAL DATA

SIZE			WORKING PRESSURE (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		CONNECTION EFFORT		OIL SPILLAGE Connection/ Disconnection		MINIMUM BURST PRESSURE						CONNECTION/ DISCONNECTION UNDER PRESSURE
											Male		Female		M & F		
DN	inch	Dash	MPa	PSI	l/min	US GPM	N	lb.	cc.	cubic inch	MPa	PSI	MPa	PSI	MPa	PSI	
6.3	¼	04	30	4350	9	2.4	40	89	0.35	0.021	140	20300	125	18125	150	21750	Not allowed
10	⅜	06	25	3625	28	7.4	65	144	0.85	0.052	115	16675	120	17400	160	23200	Not allowed
12.5	½	08	See ISO A Series sealed ball														
20	¾	12	25	3625	74	19.6	75	167	3.5	0.214	100	14500	110	15950	125	18125	Not allowed
25	1	16	21	3045	114	30.1	100	222	5	0.305	85	12325	100	14500	110	15950	Not allowed

The rated flow represents the normal operating condition. The maximum recommended flow rate is equal to 1.5 times the rated flow

PRODUCT DESCRIPTION

- Historical series for the agriculture market
- Simple connection and disconnection by pulling back the sleeve
- Positive, quick connection of the male into the female by latching the ball system
- Shut-off by ball valve
- High resistant materials
- Interchangeable with poppet valve standard series and with similar products available on the market (½" size according to ISO 7241-1 series A)

MATERIAL

Female couplings in steel, with some hardened areas, in correspondence to the most stressed points. Male couplings in high grade carbon steel hardened. High-resistance latching balls, springs in C98 steel, seals in NBR and back-up ring in PTFE

WORKING TEMPERATURE

-22°F up to +230°F (-30°C up to +110°C)
For other temperatures, the coupling may be assembled with the specific seals

SAFETY FACTOR

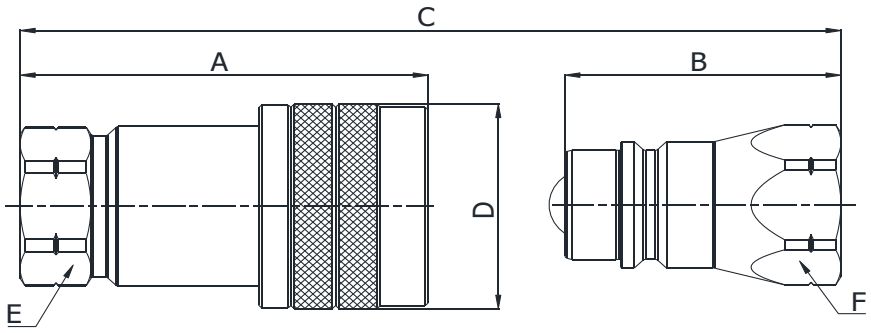
4:1 for dynamic pressures

IMPULSE PRESSURES

100,000 cycles at 133% of the rated one (freq. 1Hz)

TEST SPECIFICATIONS

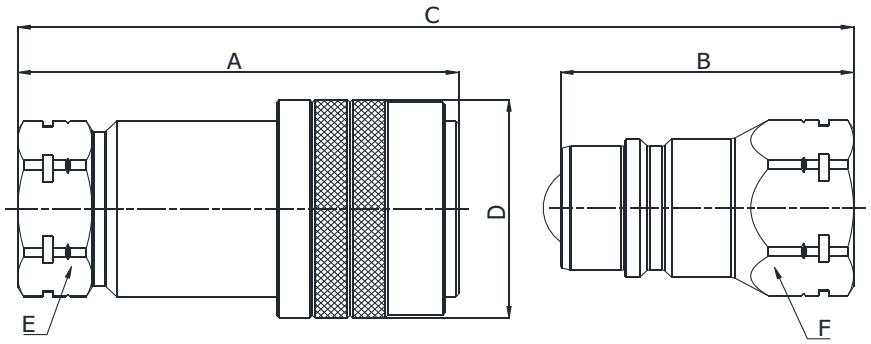
ISO 18869



Q03311041A
Q03011041A

BSP TERMINATION ENDS
TO DIN 3852 X TYPE

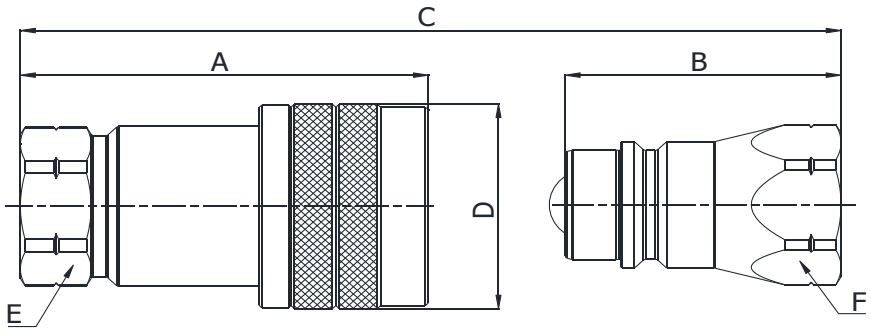
SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
6.3	1/4"	-04	Q03311041A-04-04	Q03010041A-04-04	1/4"	51.3	34.3	A+B-16,6	ø27	19	19
10	3/8"	-06	Q03311041A-06-06	Q03010041A-06-06	3/8"	59.9	39.4	A+B-20,1	ø34	24	24
12.5	1/2"	-08	SEE ISO SERIES A								
20	3/4"	-12	Q03311041A-12-12	Q03010041A-12-12	3/4"	85.5	56.5	A+B-28,3	ø47	34	34
25	1"	-16	Q03311041A-16-16	Q03010041A-16-16	1"	98	64.5	A+B-32,9	ø52	41	41



Q03311041B
Q03011041B

BSP TERMINATION ENDS
TO DIN 3852 X TYPE

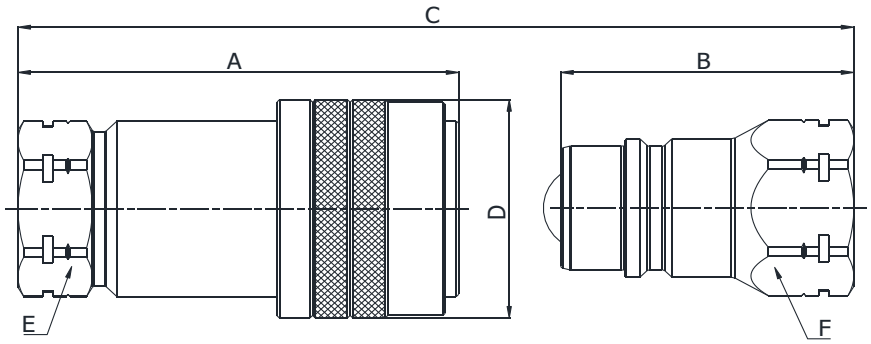
SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
20	3/4"	-12	Q03311041B-12-12	Q03010041B-12-12	3/4"	88	58.5	A+B-31,5	ø47	34	34



Q03311341A
Q03011341A

NPTF TERMINATION END
TO ANSI B 1.20.3

SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
6.3	1/4"	-04	Q03311341A-04-04	Q03010341A-04-04	1/4" NPTF	51.3	34.3	A+B-16,6	ø27	19	19
10	3/8"	-06	Q03311341A-06-06	Q03010341A-06-06	3/8" NPTF	59.9	39.4	A+B-20,1	ø34	24	24
12.5	1/2"	-08	SEE ISO SERIES A								
20	3/4"	-12	Q03311341A-12-12	Q03010341A-12-12	3/4" NPTF	85.5	56.5	A+B-28,3	ø47	34	34
25	1"	-16	Q03311341A-16-16	Q03010341A-16-16	1" NPTF	98	64.5	A+B-32,9	ø52	41	41



Q03311341B
Q03011341B

NPTF TERMINATION END
TO ANSI B 1.20.3

SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
6.3	1/4"	-04	Q03311341B-12-12	Q03010341B-12-12	3/4" NPTF	88	58.5	A+B-31,5	ø47	34	34



STANDARD FREE-FLOW

TECHNICAL DATA

SIZE			WORKING PRESSURE (Dynamic)		MINIMUM BURST PRESSURE		CONNECTION/DISCONNECTION UNDER PRESSURE
					M & F		
DN	inch	Dash	MPa	PSI	MPa	PSI	
6.3	¼	04	35	5075	160	23200	Not allowed
10	⅜	06	35	5075	145	21025	Not allowed
12.5	½	08	35	5075	145	21025	Not allowed

PRODUCT DESCRIPTION

- MQS-NL is Compact Free-Flow quick release couplings
- Simple connection & disconnection by pulling back the sleeve
- Positive quick connection of the male into the female by latching ball system
- ECOAT zinc plating with improved corrosion protection and environmentally friendly process

MATERIAL

Female & male couplings in high grade carbon steel with hardened areas in correspondence to the most stressed points. Seal in NBR with back-up in PTFE.

WORKING TEMPERATURE

-30°C to +110°C

SAFETY FACTOR

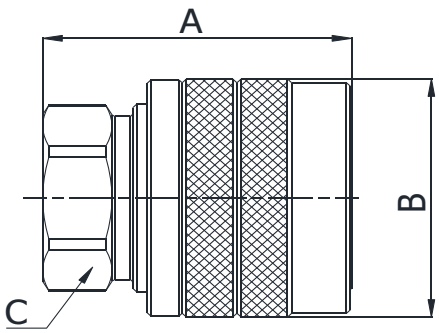
4:1 in CONNECTED & DISCONNECTED conditions

IMPULSE PRESSURES

100,000 cycles at 133% of the rated one (freq. 1Hz)

TEST SPECIFICATIONS

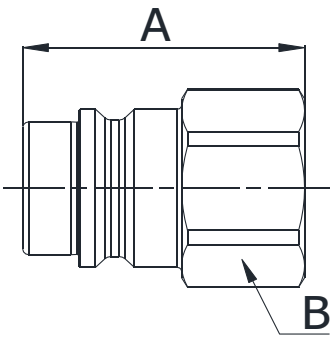
ISO 18869



Q03811041A

BSP TERMINATION ENDS
TO DIN 3852 X TYPE

SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	C			
6.3	1/4"	-04	Q03811041A-04-04	1/4"	33.2	27.5	19			
10	3/8"	-06	Q03811041A-06-06	3/8"	39.5	34.3	24			
12.5	1/2"	-08	Q03811041A-08-08	1/2"	44	38.3	27			



Q03711041A

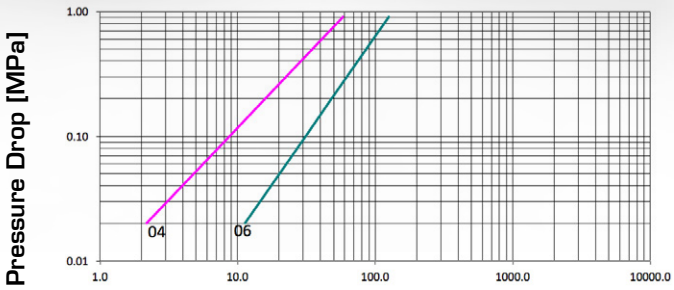
BSP TERMINATION ENDS
TO DIN 3852 X TYPE

SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B				
6.3	1/4"	-04	Q03710041A-04-04	1/4"	27.5	19				
10	3/8"	-06	Q03710041A-06-06	3/8"	29	24				
12.5	1/2"	-08	Q03710041A-08-08	1/2"	34	27				

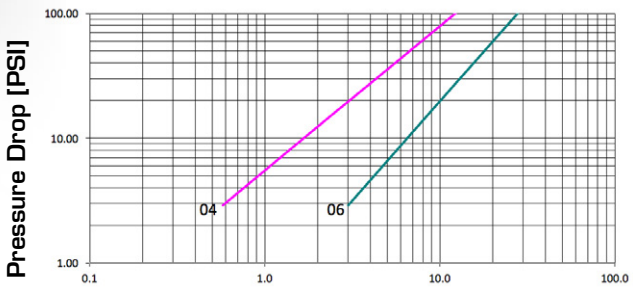
STANDARD PUSH-PULL



Pressure Drop



Pressure Drop



TECHNICAL DATA

SIZE			WORKING PRESSURE (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		CONNECTION EFFORT		OIL SPILLAGE Connection/ Disconnection		MINIMUM BURST PRESSURE				CONNECTION/ DISCONNECTION UNDER PRESSURE
											Male		M & F		
DN	inch	Dash	MPa	PSI	l/min	US GPM	N	lb.	cc.	cubic inch	MPa	PSI	MPa	PSI	
6.3	¼	04	35	5075	16	4.2	65	144	0.8	0.049	230	33350	140	20300	Not allowed
10	⅜	06	35	5075	49	12.9	100	222	1.3	0.079	170	24650	150	21750	Not allowed
12.5	½	08	See ISO A Series												

The rated flow represents the normal operating condition. The maximum recommended flow rate is equal to 1.5 times the rated flow

PRODUCT DESCRIPTION

- Female couplings designed for Agriculture applications, interchangeable with male part MQS-N
- Push-Pull connection/disconnection
- Break-away function according to ISO 5675 (in case of bulkhead mounting on the external sleeve)
- Positive connection by latching ball system
- Shut-off by poppet valve

MATERIAL

Female & male couplings in high grade carbon steel with hardened areas in correspondence to the most stressed points. Seal in NBR with back-up in PTFE.

WORKING TEMPERATURE

-30°C to +110°C

SAFETY FACTOR

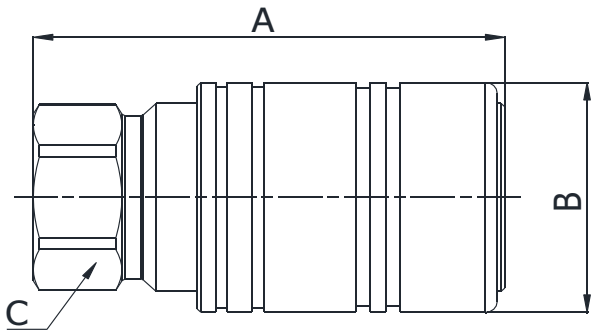
4:1 in CONNECTED & DISCONNECTED conditions

IMPULSE PRESSURES

100,000 cycles at 133% of the rated one (freq. 1Hz)

TEST SPECIFICATIONS

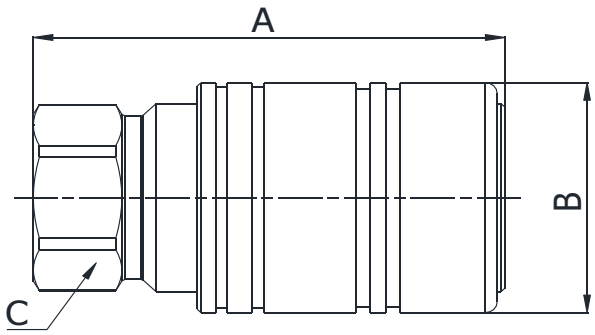
ISO 18869



Q03611041A

BSP TERMINATION ENDS
TO DIN 3852 X TYPE

SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	C			
6.3	1/4"	-04	Q03611041A-04-04	1/4"	53.5	ø27	19			
10	3/8"	-06	Q03611041A-06-06	3/8"	60.5	ø33	24			



Q03611341A

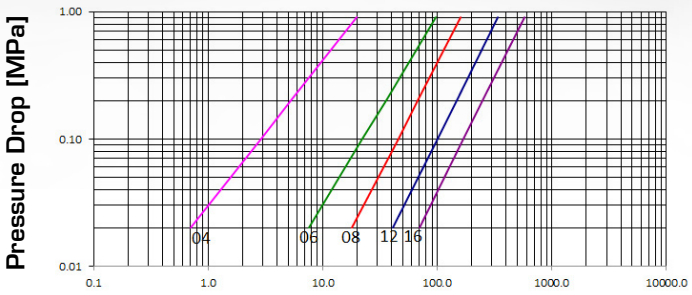
NPT TERMINATION ENDS
TO ANSI B 1.20.3

SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	C			
6.3	1/4"	-04	Q03611341A-04-04	1/4"-NPT	53.5	ø27	19			
10	3/8"	-06	Q03611341A-06-06	3/8"-NPT	60.5	ø33	24			

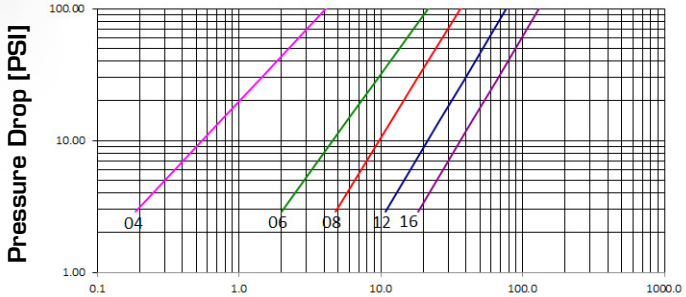
PUSH-PULL POPPET VALVE



Pressure Drop



Pressure Drop



TECHNICAL DATA

SIZE			WORKING PRESSURE (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		CONNECTION EFFORT		OIL SPILLAGE Connection/ Disconnection		MINIMUM BURST PRESSURE				CONNECTION/ DISCONNECTION UNDER PRESSURE
											Female		M & F		
DN	inch	Dash	MPa	PSI	l/min	US GPM	N	lb.	cc.	cubic inch	MPa	PSI	MPa	PSI	
6.3	¼	04	35	5075	5	1.3	80	178	0.7	0.043	180	26100	145	21025	Not allowed
10	⅜	06	31.5	4568	35	9.2	105	233	1.4	0.085	150	21750	130	18850	Not allowed
12.5	½	08	30	4350	68	18.0	110	244	2	0.122	140	20300	140	20300	Not allowed
20	¾	12	25	3625	147	38.8	165	367	7	0.427	120	17400	110	15950	Not allowed
25	1	16	25	3625	250	66.1	215	478	11	0.672	115	16675	120	17400	Not allowed

The rated flow represents the normal operating condition. The maximum recommended flow rate is equal to 1.5 times the rated flow

PRODUCT DESCRIPTION

- Female coupling designed for agriculture applications, connectable with ISO 7241-1 series A male couplings
- PUSH-PULL connection and disconnection system, in case of bulkhead mounting on the external sleeve
- Break-away function according to ISO 5675 (in case of bulkhead mounting on the external sleeve)
- Positive connection by latching balls system
- Shut-off by poppet valve
- High resistant materials
- Dimensions and performances according to ISO 7241 series A

MATERIAL

Female couplings in steel with some hardened areas, in correspondence to the most stressed points. Carbonitrided valve and sleeve, springs in C98 steel, latching balls in high resistence 100 C6 steel, seals in NBR (other materials on request) and back-up ring in PTFE. PU seal on ½" female available on request.

WORKING TEMPERATURE

-22ºF up to +230ºF (-30ºC up to +110ºC)
For other temperatures, the coupling is assembled with specific seals

SAFETY FACTOR

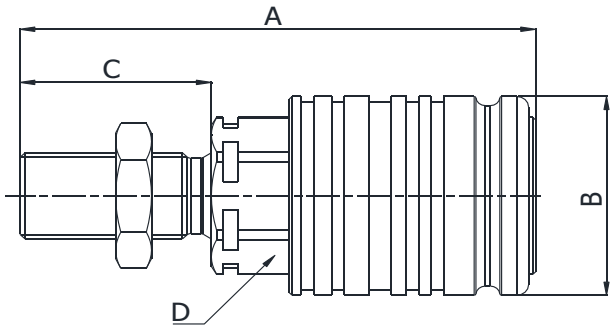
4:1 for dynamic pressures

IMPULSE PRESSURES

100,000 cycles at 133% of the rated one (freq. 1Hz)

TEST SPECIFICATIONS

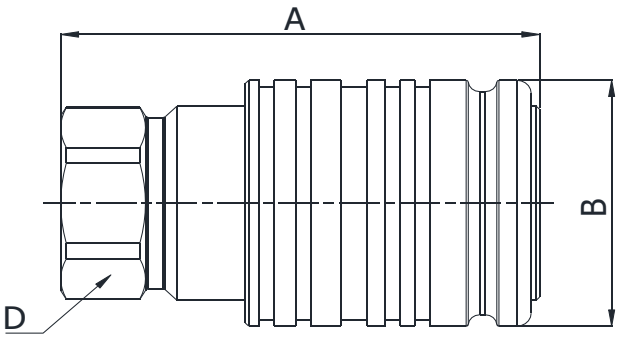
ISO 18869



Q01311040A

BSP TERMINATION ENDS
TO ISO 8434-6
BULKHEAD

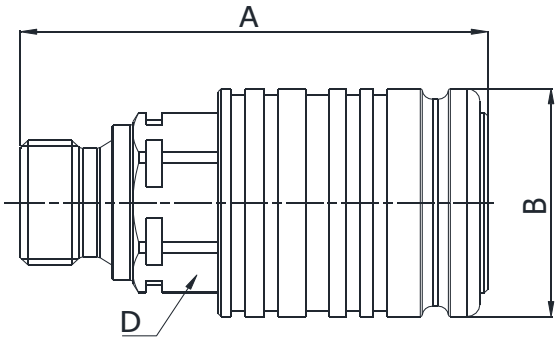
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	C	D		
12.5	1/2"	-08	Q01311040A-08-06	3/8"	86.2	ø38	32	27		



Q01311041A

BSP TERMINATION ENDS
TO DIN 3852
X TYPE

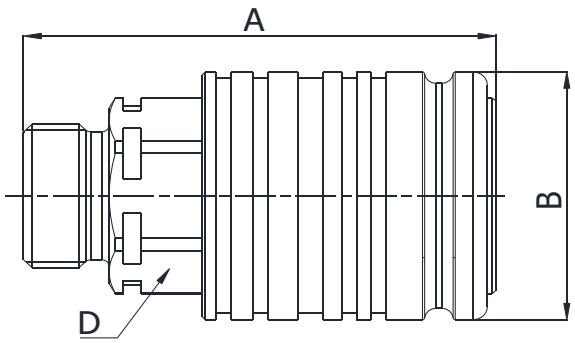
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	D			
6	1/4”	-04	Q01311041A-04-04	1/4”	58.1	ø26	17			
10	3/8"	-06	Q01311041A-06-04	1/4"	63	ø32	22			
10	3/8"	-06	Q01311041A-06-06	3/8"	64.5	ø32	22			
12.5	1/2"	-08	Q01311041A-08-06	3/8"	66.2	ø38	27			
12.5	1/2"	-08	Q01311041A-08-08	1/2"	67	ø38	27			
12.5	1/2"	-08	Q01311041A-08-12	3/4"	73.2	ø38	34			
20	3/4"	-12	Q01311041A-12-08	1/2"	85.7	ø48	34			
20	3/4"	-12	Q01311041A-12-12	3/4"	87.7	ø48	34			
25	1"	-16	Q01311041A-16-12	3/4"	97.9	ø54	41			
25	1"	-16	Q01311041A-16-16	1"	97.9	ø54	41			



Q01311050A

BSP TERMINATION ENDS
TO ISO 8434-6

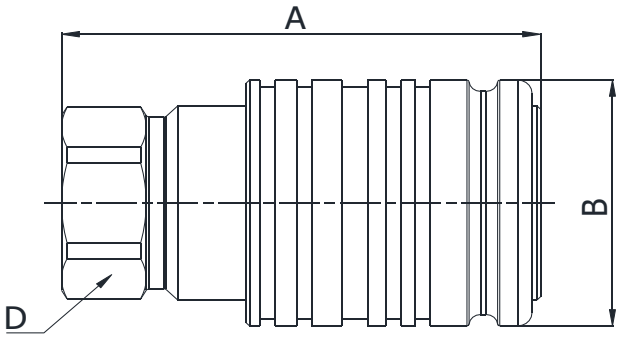
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	D			
12.5	1/2"	-08	Q01311050A-08-06	3/8"	68.9	ø38	27			
12.5	1/2"	-08	Q01311050A-08-08	1/2"	71.4	ø38	27			



Q01311110A

METRIC TERMINATION ENDS
TO ISO 8434-1
L SERIES

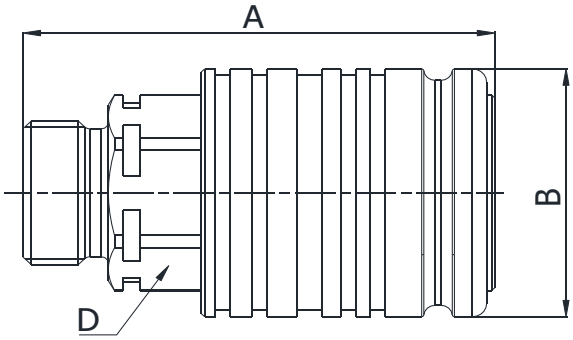
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	D			
10	3/8"	-06	Q01311110A-06-12	M12x1,5	61	ø32	22			
10	3/8"	-06	Q01311110A-06-14	M14x1,5	61	ø32	22			
10	3/8"	-06	Q01311110A-06-16	M16x1,5	61	ø32	22			
10	3/8"	-06	Q01311110A-06-18	M18x1,5	61	ø32	22			
12.5	1/2"	-08	Q01311110A-08-12	M12x1,5	66.2	ø38	27			
12.5	1/2"	-08	Q01311110A-08-14	M14x1,5	65.2	ø38	27			
12.5	1/2"	-08	Q01311110A-08-16	M16x1,5	66.2	ø38	27			
12.5	1/2"	-08	Q01311110A-08-18	M18x1,5	65.2	ø38	27			
12.5	1/2"	-08	Q01311110A-08-22	M22x1,5	66.2	ø38	27			
12.5	1/2"	-08	Q01311110A-08-26	M26x1,5	66.2	ø38	30			
20	3/4"	-12	Q01311110A-12-22	M22x1,5	85.7	ø48	34			
20	3/4"	-12	Q01311110A-12-26	M26x1,5	85.7	ø48	34			
20	3/4"	-12	Q01311110A-12-30	M30x2	87.7	ø48	34			
25	1"	-16	Q01311110A-16-26	M26x1,5	94.5	ø54	41			
25	1"	-16	Q01311110A-16-30	M30x2	96.5	ø54	41			
25	1"	-16	Q01311110A-16-36	M36x2	96.5	ø54	41			



Q01311141A

METRIC TERMINATION ENDS
TO DIN 3852 X TYPE

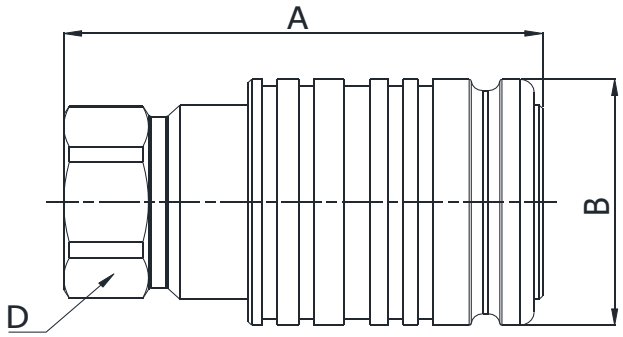
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	D			
10	3/8"	-06	Q01311141A-06-16	M16x1,5	64.5	ø32	22			
12.5	1/2"	-08	Q01311141A-08-18	M18x1,5	66.2	ø38	27			
12.5	1/2"	-08	Q01311141A-08-20	M20x1,5	67	ø38	27			
12.5	1/2"	-08	Q01311141A-08-22	M22x1,5	67	ø38	27			
20	3/4"	-12	Q01311141A-12-22	M22x1,5	84.7	ø48	34			



Q01311120A

METRIC TERMINATION ENDS
TO ISO 8434-1
S SERIES

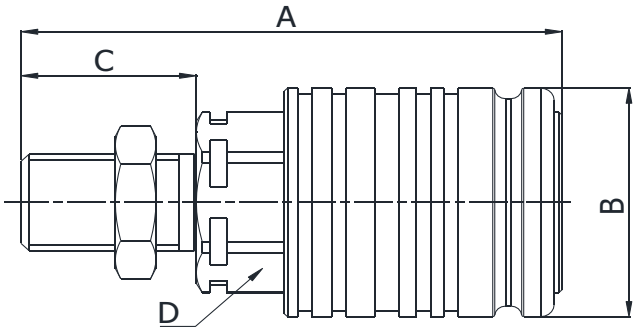
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	D			
10	3/8"	-06	Q01311120A-06-16	M16x1,5	62	ø32	22			
10	3/8"	-06	Q01311120A-06-18	M18x1,5	62	ø32	22			
12.5	1/2"	-08	Q01311120A-08-18	M18x1,5	66.2	ø38	27			
12.5	1/2"	-08	Q01311120A-08-20	M20x1,5	66.2	ø38	27			
12.5	1/2"	-08	Q01311120A-08-24	M24x1,5	68.2	ø38	27			
25	1"	-16	Q01311120A-16-30	M30x2	98.5	ø54	41			
25	1"	-16	Q01311120A-16-36	M36x2	100.5	ø54	41			
25	1"	-16	Q01311120A-16-42	M40x2	102.5	ø54	46			



Q01311191A

METRIC TERMINATION ENDS
TO DIN 3852 X TYPE

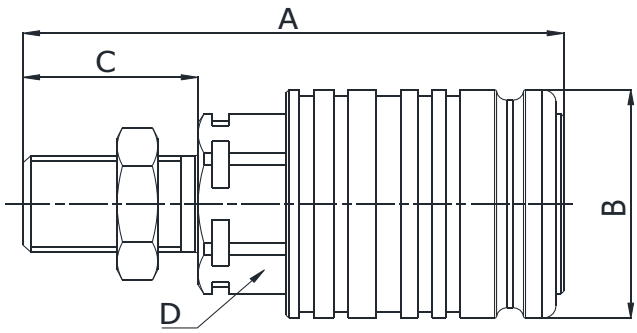
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	D			
12.5	1/2"	-08	Q01311191A-08-16*	M16x1,5	66.7	ø38	27			
12.5	1/2"	-08	Q01311191A-08-18*	M18x1,5	68.2	ø38	27			
12.5	1/2"	-08	Q01311191A-08-22	M22x1,5	67	ø38	27			



Q01311770A

METRIC TERMINATION END
TO ISO 8434-1
BULKHEAD L SERIES

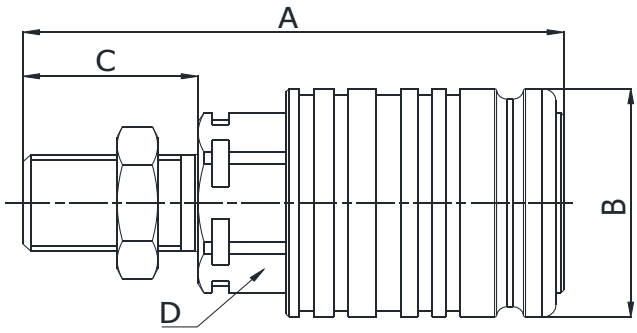
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	C	D		
12.5	1/2"	-08	Q01311770A-08-18	M18x1,5	90.2	ø38	36	27		



Q01311770B

METRIC TERMINATION END
TO ISO 8434-1
BULKHEAD L SERIES

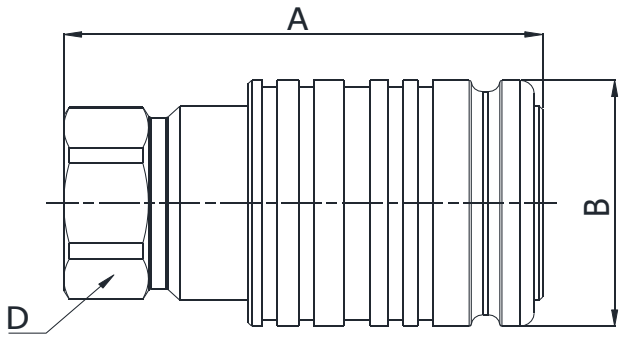
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	C	D		
10	3/8"	-06	Q01311770B-06-12	M12x1,5	76	ø32	25	22		
10	3/8"	-06	Q01311770B-06-14	M14x1,5	75	ø32	25	22		
10	3/8"	-06	Q01311770B-06-16	M16x1,5	75	ø32	26	22		
10	3/8"	-06	Q01311770B-06-18	M18x1,5	75	ø32	26	22		
12.5	1/2"	-08	Q01311770B-08-14	M14x1,5	80.2	ø38	25	27		
12.5	1/2"	-08	Q01311770B-08-16	M16x1,5	80.2	ø38	26	27		
12.5	1/2"	-08	Q01311770B-08-18	M18x1,5	80.2	ø38	26	27		
12.5	1/2"	-08	Q01311770B-08-22	M22x1,5	81.2	ø38	27	27		
12.5	1/2"	-08	Q01311770B-08-26	M26x1,5	82.2	ø38	28	30		
20	3/4"	-12	Q01311770B-12-22	M22x1.5	100.7	ø48	27	34		
20	3/4"	-12	Q01311770B-12-26	M26x1.5	101.7	ø48	28	34		
20	3/4"	-12	Q01311770B-12-30	M30x2	105.7	ø48	32	34		
25	1"	-16	Q01311770B-16-30	M30x2	114.5	ø54	32	41		



Q01311870B

METRIC TERMINATION END
TO ISO 8434-1
BULKHEAD S SERIES

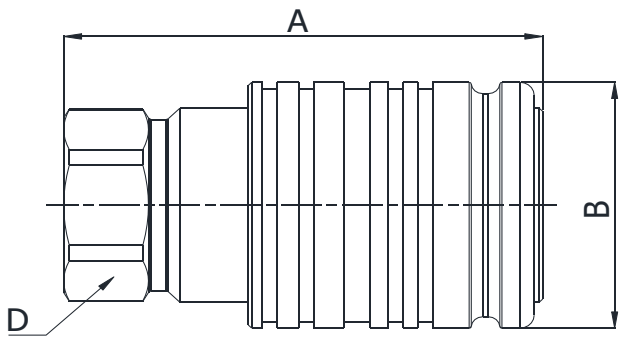
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	C	D		
10	3/8"	-06	Q01311870B-06-16	M16x1,5	76	ø32	27	22		
10	3/8"	-06	Q01311870B-06-18	M18x1,5	76	ø32	27	22		
12.5	1/2"	-08	Q01311870B-08-18	M18x1,5	81.2	ø38	27	27		
12.5	1/2"	-08	Q01311870B-08-20	M20x1,5	81.2	ø38	27	27		
12.5	1/2"	-08	Q01311870B-08-24	M24x1,5	83.2	ø38	29	27		
20	3/4"	-12	Q01311870B-12-30	M30x2	107.7	ø48	34	34		
25	1"	-16	Q01311870B-16-36	M36x2	118.5	ø54	36	41		



Q01311341A

NPT TERMINATION END
TO ANSI B 1.20.3 STANDARD

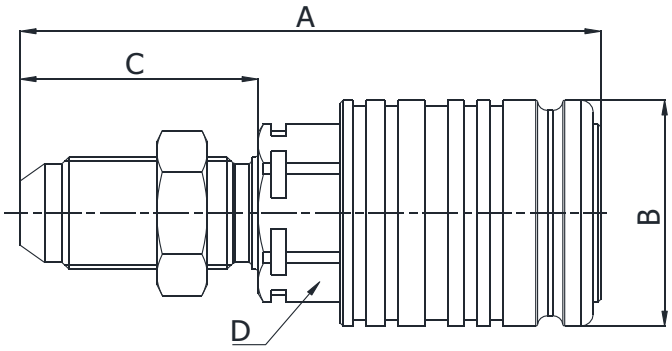
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	D			
6	1/4"	-04	Q01311341A-04-04	1/4" NPTF	58	ø26	17			
10	3/8"	-06	Q01311341A-06-06	3/8" NPTF	64.5	ø32	22			
12.5	1/2"	-08	Q01311341A-08-08	1/2" NPTF	67	ø38	27			
20	3/4"	-12	Q01311341A-16-12	3/4" NPTF	97.9	ø54	41			
25	1"	-16	Q01311341A-16-16	1" NPTF	97.9	ø54	41			



Q01311301A

SAE TERMINATION ENDS
TO SAE J1926-1

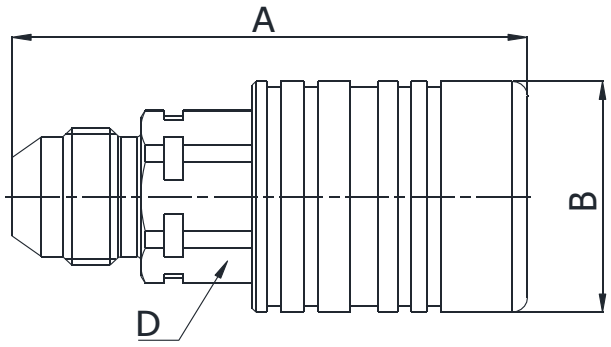
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	D			
10	3/8"	-06	Q01311301A-06-06*	9/16"-18 UNF	64.5	ø32	22			
12.5	1/2"	-08	Q01311301A-08-08	3/4"-16 UNF	67	ø38	27			
12.5	1/2"	-08	Q01311301A-08-10	7/8"-14 UNF	69	ø38	27			



Q01311230A

SAE TERMINATION END
TO ISO 8434-2
BULKHEAD

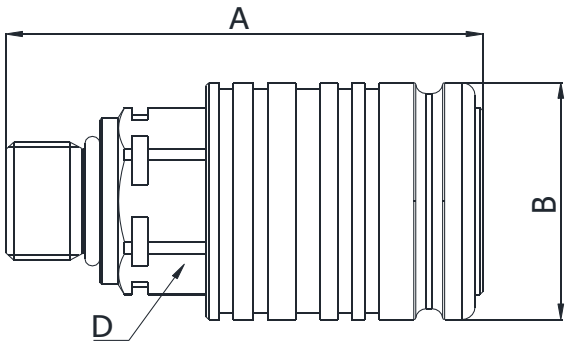
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	C	D		
12.5	1/2"	-08	Q01311230A-08-08	3/4"-16 UNF	91.8	ø38	37.6	27		
12.5	1/2"	-08	Q01311230A-08-10	7/8"-14 UNF	95.3	ø38	41.1	27		



Q01311250A

SAE TERMINATION END
TO ISO 8434-2

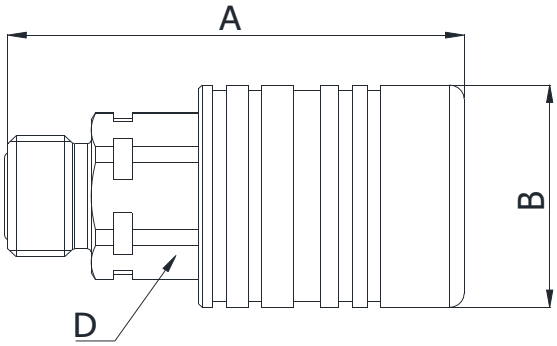
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	D			
10	3/8"	-06	Q01311250A-06-08	3/4"-16 UNF	66.7	ø32	22			



Q01311320A

ORB TERMINATION ENDS
TO SAE J1926-2
S SERIES

SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	D			
12.5	1/2"	-08	Q01311320A-08-08	3/4"-16 UNF	68.2	ø38	27			



Q01311240A

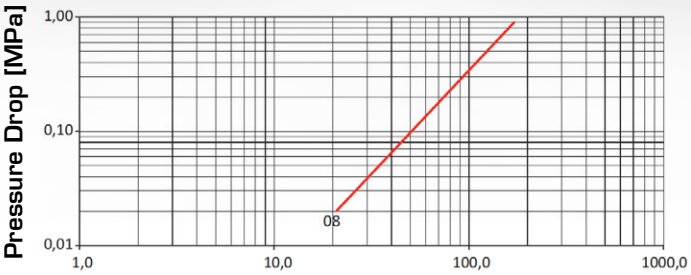
ORFS TERMINATION ENDS
TO ISO 8434-3

SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	D			
10	3/8"	-06	Q01311240A-06-04	9/16"-18 UN	60.8	ø32	22			
10	3/8"	-06	Q01311240A-06-06	11/16"-16 UN	61.2	ø32	22			
12.5	1/2"	-08	Q01311240A-08-08	13/16"-16 UN	66.2	ø38	27			
25	1"	-16	Q01311240A-16-16	1.7/16"-12 UN	100	ø54	41			

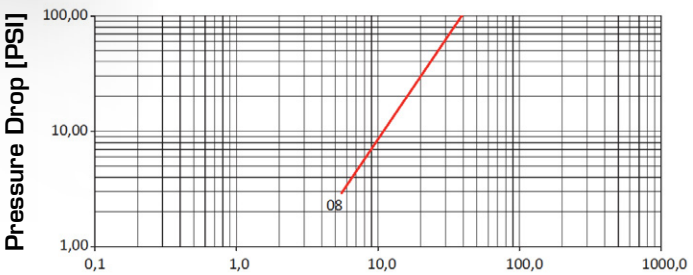
PUSH-PULL CONNECTABLE UNDER PRESSURE



Pressure Drop



Pressure Drop



TECHNICAL DATA

SIZE			WORKING PRESSURE (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		CONNECTION EFFORT		OIL SPILLAGE Connection/ Disconnection		MINIMUM BURST PRESSURE				CONNECTION/ DISCONNECTION UNDER PRESSURE
											Female		M & F		
DN	inch	Dash	MPa	PSI	l/min	US GPM	N	lb.	cc.	cubic inch	MPa	PSI	MPa	PSI	
12.5	½	08	30	4350	68	18.0	110	244	2 With 0 MPa pressure	0.122	120	17400	140	20300	Connection only

The rated flow represents the normal operating condition. The maximum recommended flow rate is equal to 1.5 times the rated flow

PRODUCT DESCRIPTION

- Female coupling designed for agriculture applications, connectable with ISO 7241-1 series A male couplings
- Connectable under pressure thanks to a frontal micro-valve
- Push-Pull connection and disconnection system, in case of bulkhead mounting on the external sleeve
- Break-away function according to ISO 5675 (in case of bulkhead mounting on the external sleeve)
- Positive connection by latching balls system
- Shut-off by poppet valve
- High resistant materials
- Dimensions and performances according to ISO 7241 series A

MATERIAL

Female couplings in steel with some hardened areas, in correspondence to the most stressed points. Carbonitrided valve, micro-valve and sleeve, springs in C98 steel, latching balls in 100 C6 steel, seals in NBR and polyurethane (other materials on request) and back-up ring in PTFE. PU seal on ½" female available on request.

WORKING TEMPERATURE

-22°F up to +230°F (-30°C up to +110°C)
For other temperatures, the quick coupling is assembled with specific seals

SAFETY FACTOR

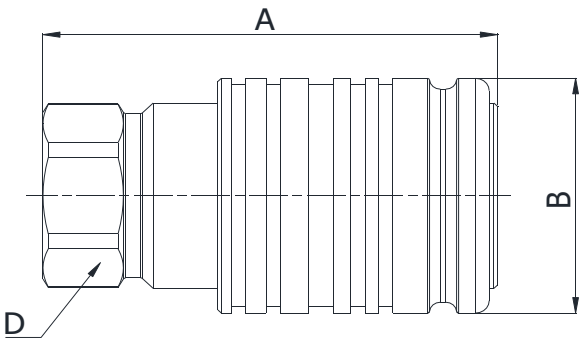
4:1 for dynamic pressures

IMPULSE PRESSURES

100,000 cycles of impulse pressure at 133% of the rated one (freq. 1Hz)

TEST SPECIFICATIONS

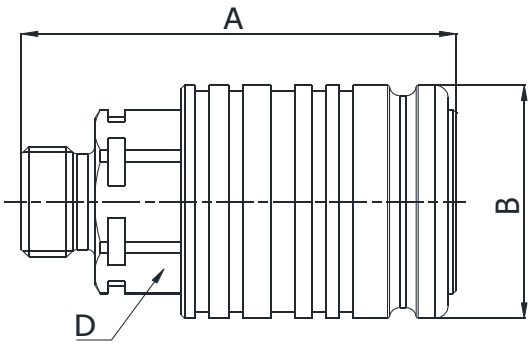
ISO 18869



Q01511041A

BSP TERMINATION ENDS
TO DIN 3852 X TYPE

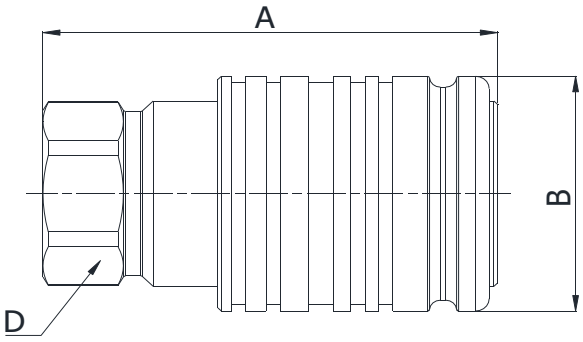
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	D			
12.5	1/2"	-08	Q01511041A-08-08	1/2"	67	ø38	27			



Q01511110A

METRIC TERMINATION END
TO ISO 8434-1
L SERIES

SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	D			
12.5	1/2"	-08	Q01511110A-08-18	M18x1,5	65.2	ø38	27			



Q01511341A

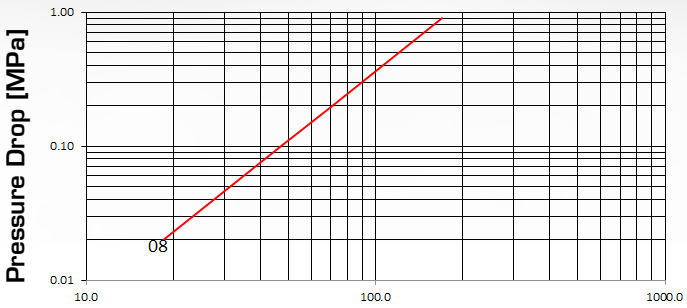
NPT TERMINATION END
TO ANSI B 1.20.3 STANDARD

SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	D			
12.5	1/2"	-08	Q01511341A-08-08	1/2" NPTF	67	ø38	27			

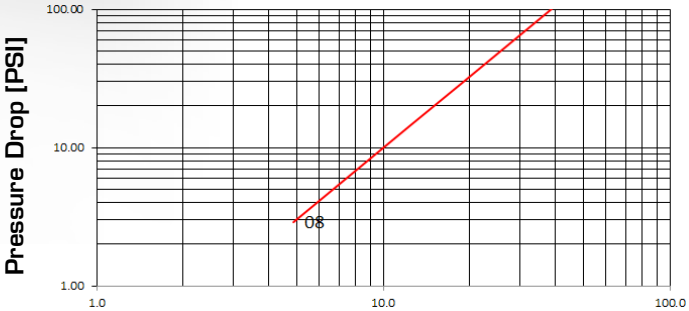


PUSH-PULL FEMALE CONNECTABLE WITH MALE UNDER PRESSURE

Pressure Drop



Pressure Drop



TECHNICAL DATA

SIZE			WORKING PRESSURE (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		CONNECTION EFFORT		OIL SPILLAGE Connection/ Disconnection		MINIMUM BURST PRESSURE				CONNECTION/ DISCONNECTION UNDER PRESSURE
DN	inch	Dash	MPa	PSI	l/min	US GPM	N	lb.	cc.	cubic inch	Female		M & F		
											MPa	PSI	MPa	PSI	
12.5	½	08	30	4350	71	18.8	170	378	2	0.122	125	18125	125	18125	Connection only, with male under pressure

The rated flow represents the normal operating condition. The maximum recommended flow rate is equal to 1.5 times the rated flow

PRODUCT DESCRIPTION

- Connectable with male ISO A under pressure
- Working pressure 30MPa
- Connection/disconnection PUSH-PULL
- No shut-off, Manuli mechanical valve block system
- Installation on hoses with coupling blocked on panel by the sleeve
- Breakaway function according to ISO 5675
- Interchangeable according to ISO 7241 series A
- Wide range of termination end

MATERIAL

Couplings in steel with some stressed area hardened, carbonitrided valve, springs in C98 steel, seals in NBR, back-up ring PTFE. PU seal on ½" female available on request.

WORKING TEMPERATURE

-22°F up to +230°F (-30°C up to +110°C)
For other temperatures, the quick coupling is assembled with specific seals

SAFETY FACTOR

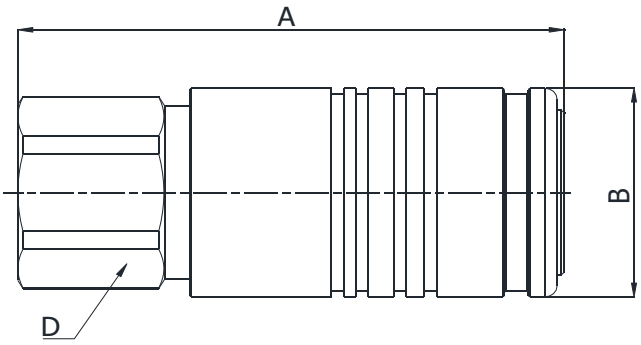
4:1 for dynamic pressures

IMPULSE PRESSURES

500,000 cycles (connected and disconnected conditions) at 120% of the rated one (freq. 1Hz)

TEST SPECIFICATIONS

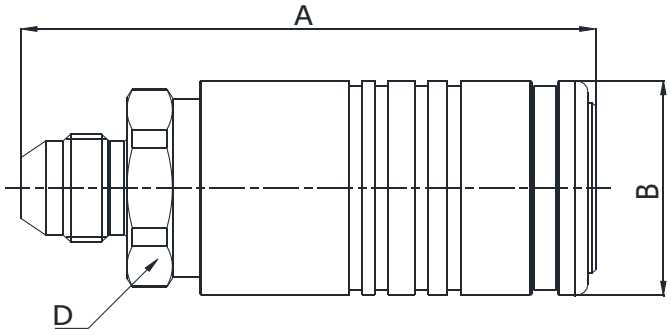
ISO 18869



Q01611041A

BSP TERMINATION ENDS
TO DIN 3852 X TYPE

SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	D			
12.5	1/2"	-08	Q01611041A-08-08	1/2"	91.2	ø38	32			



Q01611250A

SAE TERMINATION ENDS
TO ISO 8434-2

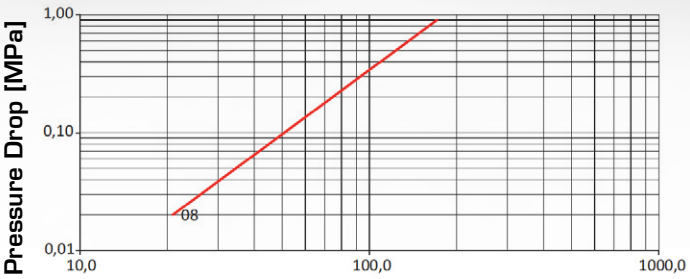
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	D			
12.5	1/2"	-08	Q01611250A-08-08	3/4"- 16 UNF	90.7	ø38	32			

manuli® HYDRAULICS

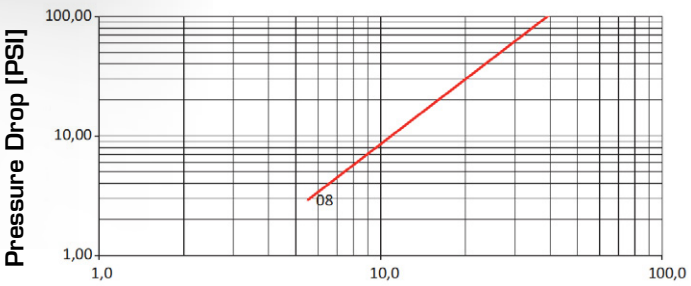


PUSH-PULL FEMALE BOTH PARTS CONNECTABLE UNDER PRESSURE

Pressure Drop



Pressure Drop



TECHNICAL DATA

SIZE			WORKING PRESSURE (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		CONNECTION EFFORT		OIL SPILLAGE Connection/ Disconnection		MINIMUM BURST PRESSURE				CONNECTION/ DISCONNECTION UNDER PRESSURE
											Female		M & F		
DN	inch	Dash	MPa	PSI	l/min	US GPM	N	lb.	cc.	cubic inch	MPa	PSI	MPa	PSI	
12.5	½	08	30	4350	71	18.8	170	378	2	0.122	125	18125	125	18125	Connection only, with male and female under pressure
									With 0 MPa of pressure						

The rated flow represents the normal operating condition. The maximum recommended flow rate is equal to 1.5 times the rated flow

PRODUCT DESCRIPTION

- Connectable with male ISO A and female under pressure
- Working pressure 30MPa
- Connection/disconnection PUSH-PULL
- No shut-off, Manuli mechanical valve block system
- Installation on hoses with coupling blocked on panel by the sleeve
- Breakaway function according to ISO 5675
- Interchangeable according to ISO 7241 series A
- Wide range of termination ends

MATERIAL

Couplings in steel with some stressed area hardened, carbonitrided valve, springs in C98 steel, seals in polyurethane and NBR, back-up ring PTFE. PU seal on ½" female available on request.

WORKING TEMPERATURE

-22ºF up to +230ºF (-30ºC up to +110ºC)
For other temperatures, the quick coupling is assembled with specific seals

SAFETY FACTOR

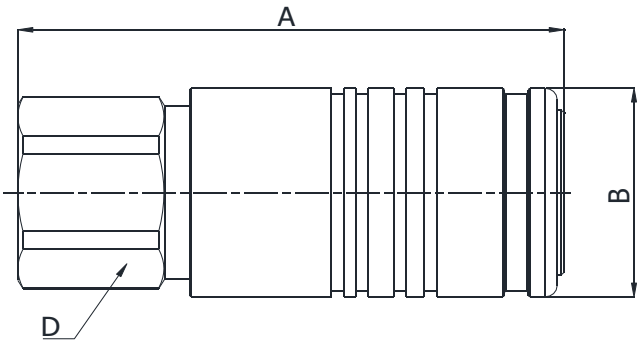
4:1 for dynamic pressures

IMPULSE PRESSURES

500,000 cycles (connected and disconnected conditions) at 120% of the rated one (freq. 1Hz)

TEST SPECIFICATIONS

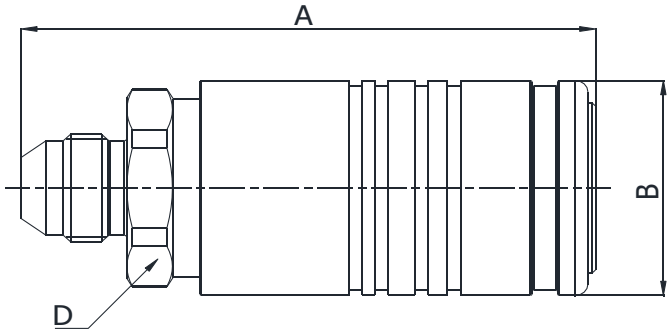
ISO 18869



Q01711041A

BSP TERMINATION ENDS
TO DIN 3852 X TYPE

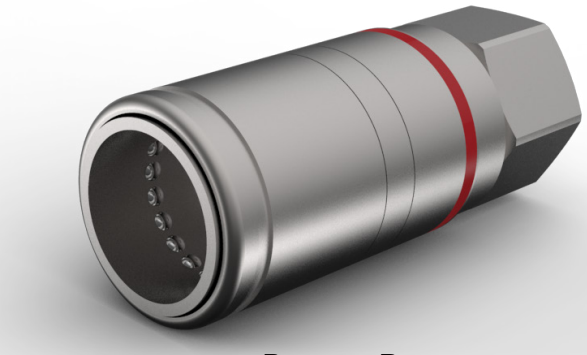
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	D			
12.5	1/2"	-08	Q01711041A-08-08	1/2”	91.2	ø38	32			



Q01711250A

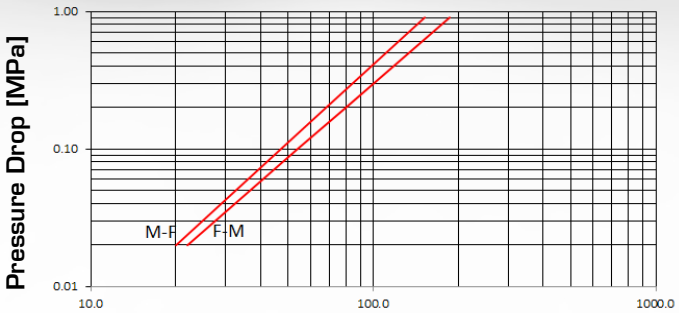
SAE TERMINATION ENDS
TO ISO 8434-2

SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	D			
12.5	1/2"	-08	Q01711250A-08-08	3/4"- 16 UNF	90.7	ø38	32			

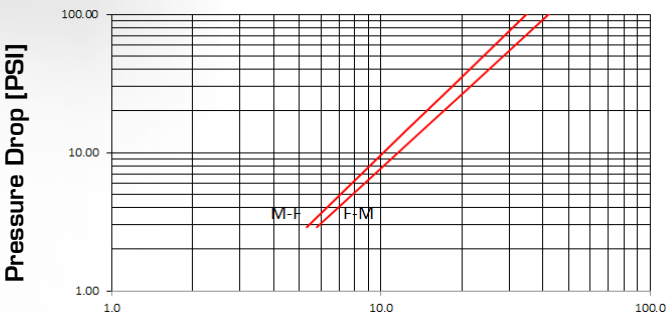


PUSH-PULL FEMALE CONNECTABLE WITH MALE UNDER PRESSURE

Pressure Drop



Pressure Drop



TECHNICAL DATA

SIZE			WORKING PRESSURE (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop			CONNECTION EFFORT		OIL SPILLAGE Connection/ Disconnection		MINIMUM BURST PRESSURE				CONNECTION/ DISCONNECTION UNDER PRESSURE
DN	inch	Dash	MPa	PSI	Flow direction	l/min	US GPM	N	lb.	cc.	cubic inch	Male		M & F		
												MPa	PSI	MPa	PSI	
12.5	½	08	30	4350	F → M	80	21.1	230	511	2	0.122	125	18125	125	18125	Connection only, with male under pressure
					M → F	68	18.0									

The rated flow represents the normal operating condition. The maximum recommended flow rate is equal to 1.5 times the rated flow

PRODUCT DESCRIPTION

- Connectable with male ISO A under pressure
- Working pressure 30MPa
- Connection/disconnection PUSH-PULL
- No shut-off, Manuli mechanical valve block system
- Installation on pipe and ports
- Breakaway function according to ISO 5675
- Interchangeable according to ISO 7241 series A
- Wide range of termination ends
- According to all requirements of ISO 5675

MATERIAL

Couplings in steel with some stressed area hardened, carbonitrided valve, springs in C98 steel, seals in NBR, back-up ring PTFE. PU seal on ½" female available on request.

WORKING TEMPERATURE

-22°F up to +230°F (-30°C up to +110°C)
For other temperatures, the quick coupling is assembled with specific seals

SAFETY FACTOR

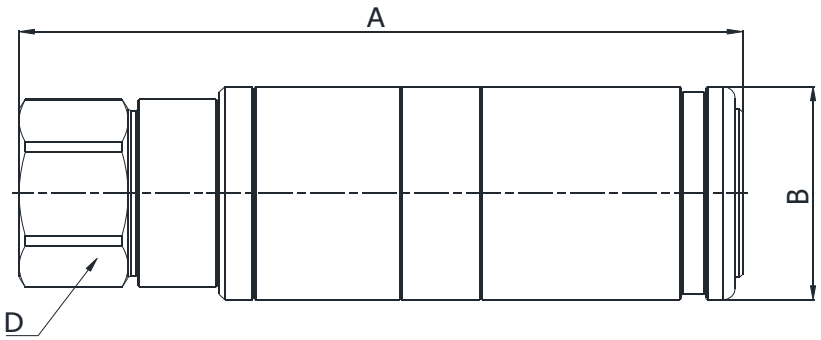
4:1 for dynamic pressures

IMPULSE PRESSURES

500,000 cycles (connected and disconnected conditions) at 120% of the rated one (freq. 1Hz)

TEST SPECIFICATIONS

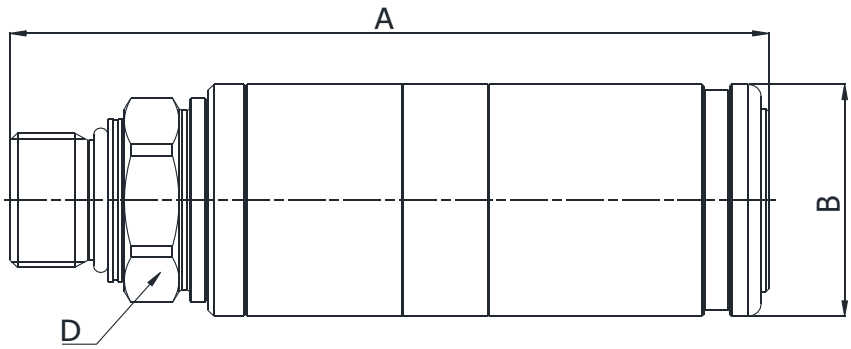
ISO 18869



Q01811041A

BSP TERMINATION ENDS
TO DIN 3852 X TYPE

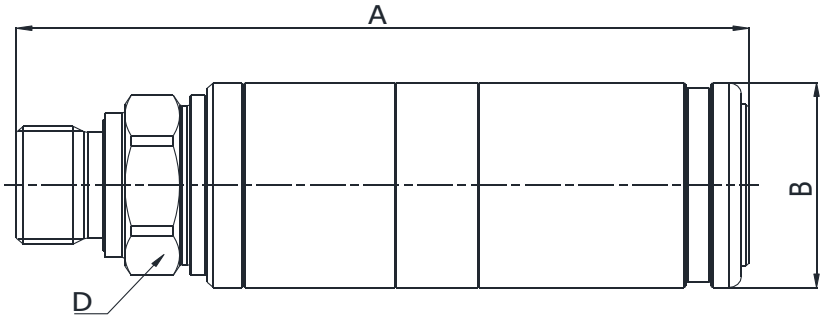
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	D			
12.5	1/2"	-08	Q01811041A-08-08	1/2"	118.4	ø38	30			



Q01811190A

METRIC TERMINATION ENDS
TO ISO 6149-2

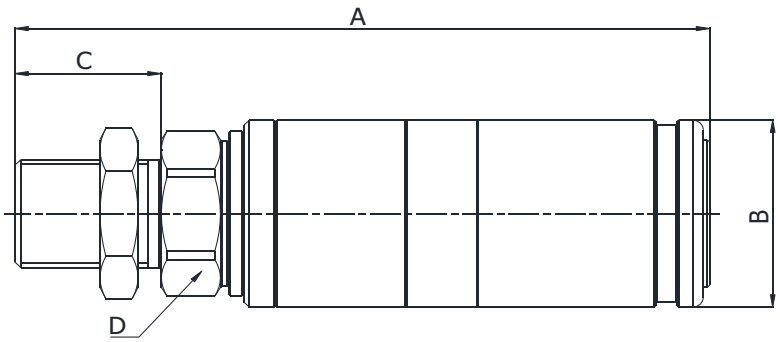
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	D			
12.5	1/2"	-08	Q01811190A-08-22	M22x1,5	115.9	ø38	30			



Q01811140A

METRIC TERMINATION ENDS
TO ISO 9974-2

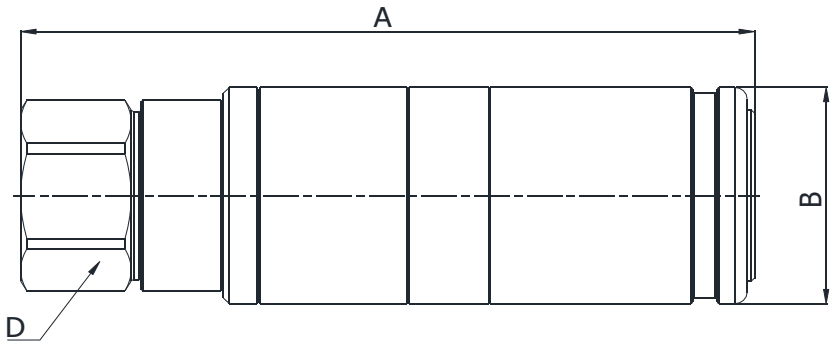
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	D			
12.5	1/2"	-08	Q01811140A-08-22	M22x1,5	115.9	ø38	30			



Q01811770B

METRIC TERMINATION ENDS
ISO 8434-1 L SERIES BULKHEAD

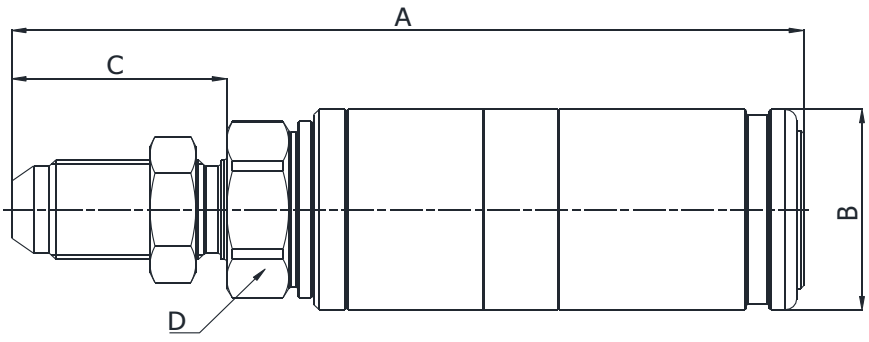
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	C	D		
12.5	1/2"	-08	Q01811770B-08-22	M22x1,5	127.9	ø38	27	30		



Q01811341A

NPT TERMINATION ENDS
TO ANSI B 1.20.3

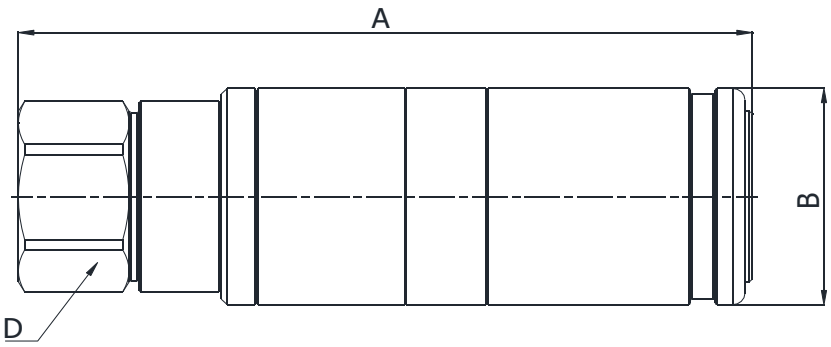
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	D			
12.5	1/2"	-08	Q01811341A-08-08	1/2" NPTF	118.4	ø38	30			



Q01811230A

SAE TERMINATION ENDS
ISO 8434-2 BULKHEAD

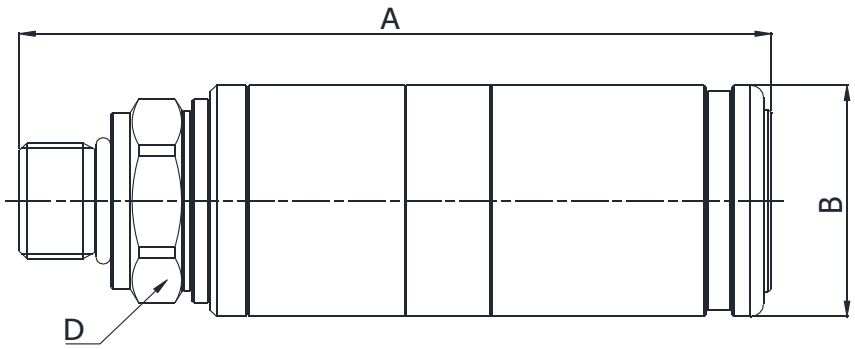
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	C	D		
12.5	1/2"	-08	Q01811230A-08-08	3/4"-16 UNF	138.5	ø38	37.6	30		
12.5	1/2"	-08	Q01811230A-08-10	7/8"-14UNF	142	ø38	40.1	30		



Q01811301A

SAE TERMINATION ENDS
TO SAE J1926-1

SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	D			
12.5	1/2"	-08	Q01811301A-08-08	3/4"-16 UNF	117.4	ø38	30			

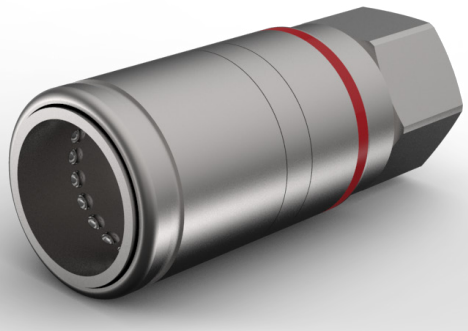


Q01811320A

ORB TERMINATION ENDS
TO SAE J1926-2 S SERIES

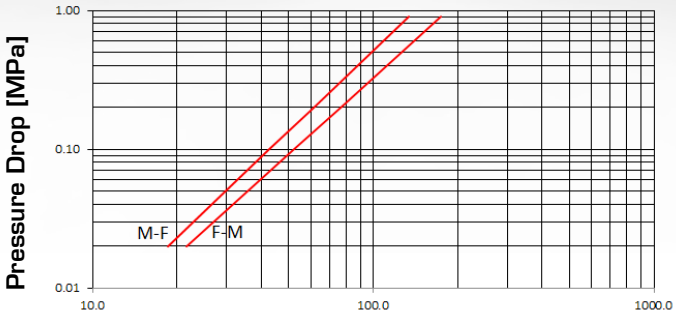
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	D			
12.5	1/2"	-08	Q01811320A-08-08	3/4"-16 UNF	115	ø38	30			
12.5	1/2"	-08	Q01811320A-08-10	7/8"-14UNF	117	ø38	30			

manuli® HYDRAULICS

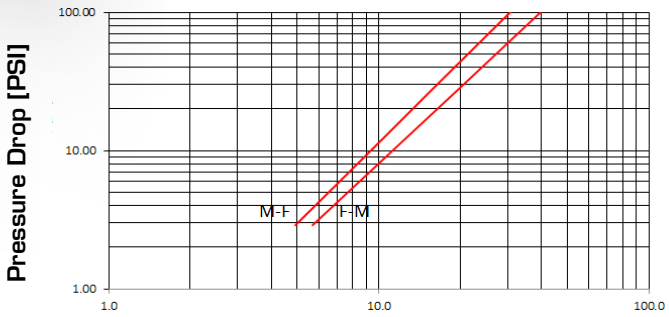


PUSH-PULL FEMALE CONNECTABLE WITH BOTH PARTS UNDER PRESSURE

Pressure Drop



Pressure Drop



TECHNICAL DATA

SIZE			WORKING PRESSURE (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop			CONNECTION EFFORT		OIL SPILLAGE Connection/ Disconnection		MINIMUM BURST PRESSURE				CONNECTION/ DISCONNECTION UNDER PRESSURE
DN	inch	Dash	MPa	PSI	Flow direction	l/min	US GPM	N	lb.	cc.	cubic inch	Male		M & F		
												MPa	PSI	MPa	PSI	
12.5	½	08	30	4350	F → M	80	21.1	230	511	2.5	0.153	125	18125	125	18125	Connection only, with male & female under pressure
					M → F	68	18.0			With 0MPa of pressure						

The rated flow represents the normal operating condition. The maximum recommended flow rate is equal to 1.5 times the rated flow

PRODUCT DESCRIPTION

- Connectable with male ISO A and female under pressure
- Working pressure 30MPa
- Connection/disconnection PUSH-PULL
- No shut-off, Manuli mechanical valve block system
- Installation on pipe and ports
- Breakaway function according to ISO 5675
- Interchangeable according to ISO 7241 series A
- Wide range of termination ends
- According to all requirements of ISO 5675

MATERIAL

Couplings in steel with some stressed area hardened, carbonitrided valve, springs in C98 steel, seals in polyurethane and NBR, back-up ring PTFE. PU seal on ½" female available on request.

WORKING TEMPERATURE

-22°F up to +230°F (-30°C up to +110°C)
For other temperatures, the quick coupling is assembled with specific seals

SAFETY FACTOR

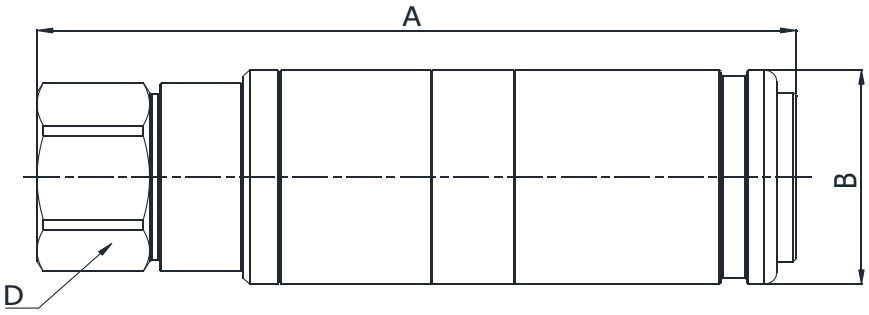
4:1 for dynamic pressures

IMPULSE PRESSURES

500,000 cycles (connected and disconnected conditions) at 120% of the rated one (freq. 1Hz)

TEST SPECIFICATIONS

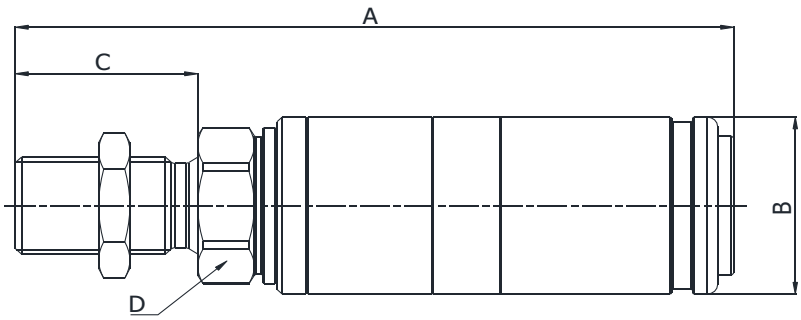
ISO 18869



Q01911041A

BSP TERMINATION ENDS
TO DIN 3852 X TYPE

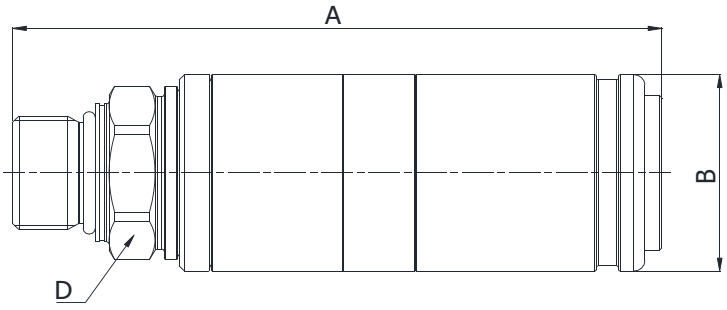
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	D			
12.5	1/2"	-08	Q01911041A-08-08	1/2"	120.3	ø38	30			



Q01911040A

BSP TERMINATION ENDS
TO ISO 8434-6
BULKHEAD

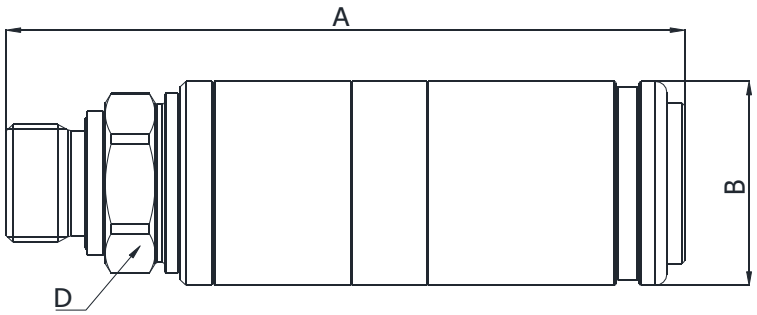
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	C	D		
12.5	1/2"	-08	Q01911040A-08-08	1/2"	137.8	ø38	35	30		



Q01911190A

METRIC TERMINATION ENDS
TO ISO 6149-2

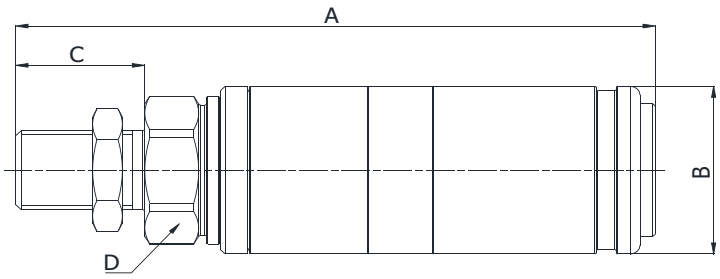
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	D			
12.5	1/2"	-08	Q01911190A-08-22	M22x1,5	117.8	ø38	30			



Q01911140A

METRIC TERMINATION ENDS
TO ISO 9974-2

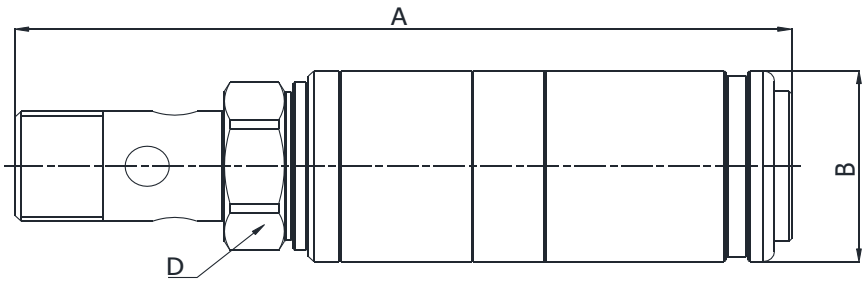
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	D			
12.5	1/2"	-08	Q01911140A-08-22	M22x1,5	117.8	ø38	30			



Q01911770B

METRIC TERMINATION ENDS
ISO 8434-1 L SERIES BULKHEAD

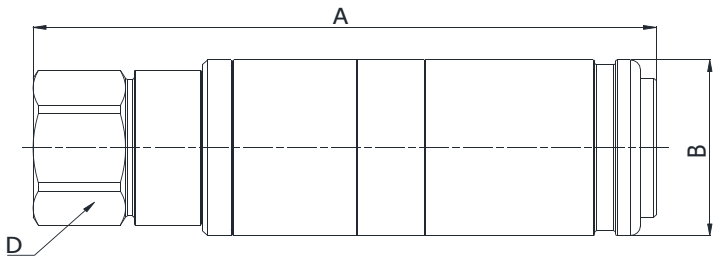
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	C	D		
12.5	1/2"	-08	Q01911770B-08-18	M18x1,5	128.8	ø38	26	30		
12.5	1/2"	-08	Q01911770B-08-22	M22x1,5	129.8	ø38	27	30		



Q01911080A

METRIC TERMINATION ENDS
DIN 7643

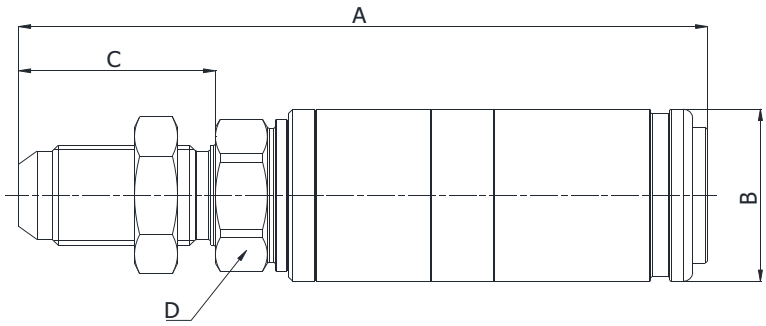
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	D			
12.5	1/2"	-08	Q01911080A-08-22	M22x1,5	140.8	ø38	30			



Q01911341A

NPT TERMINATION ENDS
TO ANSI B 1.20.3

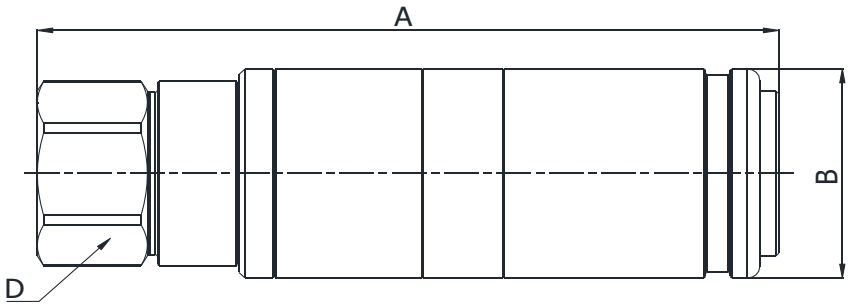
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	D			
12.5	1/2"	-08	Q01911341A-08-08	1/2" NPTF	120.3	ø38	30			



Q01911230A

SAE TERMINATION ENDS
ISO 8434-2 BULKHEAD

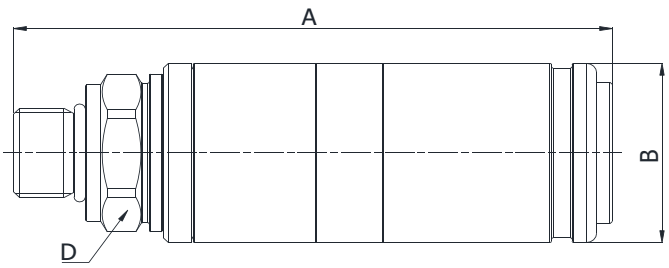
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	D			
12.5	1/2"	-08	Q01911230A-08-10	7/8"-14UNF	143.9	ø38	40.1	30		



Q01911301A

SAE TERMINATION ENDS
TO SAE J1926-1

SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	D			
12.5	1/2"	-08	Q01911301A-08-08	3/4"-16 UNF	119.3	ø38	30			



Q01911320A

ORB TERMINATION ENDS
TO SAE J1926-2 S SERIES

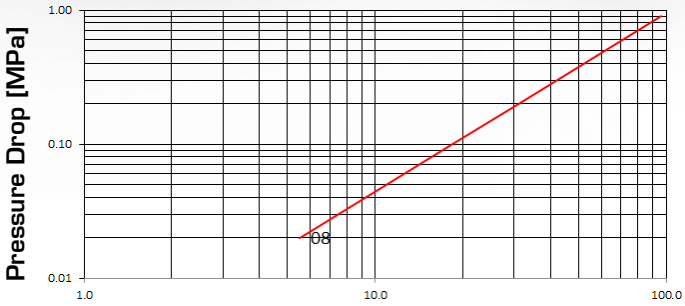
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	D			
12.5	1/2"	-08	Q01911320A-08-08	3/4"-16 UNF	116.9	ø38	30			
12.5	1/2"	-08	Q01911320A-08-10	7/8"-14UNF	118.9	ø38	30			

manuli HYDRAULICS

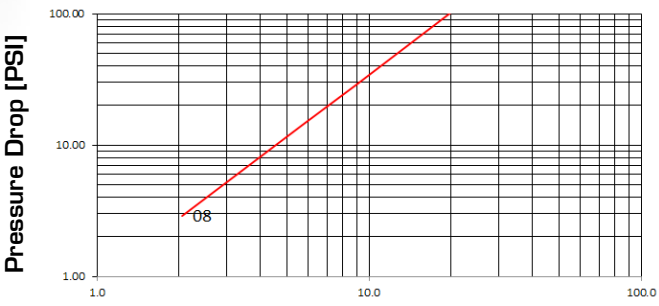
BRAKING CIRCUIT VALVES



Pressure Drop



Pressure Drop



TECHNICAL DATA

SIZE			WORKING PRESSURE (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		CONNECTION EFFORT		OIL SPILLAGE Connection/ Disconnection		MINIMUM BURST PRESSURE						CONNECTION/ DISCONNECTION UNDER PRESSURE
											Male		Female		M & F		
DN	inch	Dash	MPa	PSI	l/min	US GPM	N	lb.	cc.	cubic inch	MPa	PSI	MPa	PSI	MPa	PSI	
12.5	½	08	15	2175	31	8.2	110	224	0.02	0.001	130	18850	60	8700	130	18850	Not allowed

The rated flow represents the normal operating condition. The maximum recommended flow rate is equal to 1.5 times the rated flow

PRODUCT DESCRIPTION

- Trailer brake coupling specially designed to connect the hydraulic breaking system of tractors to trailers
- Connection and disconnection by pulling back the sleeve
- Positive connection by latching balls system
- Shut-off by flat valve
- The male has to be placed on the tractor and the female on the implement
- Interchangeable according to ISO 5676

MATERIAL

Female and male coupling in steel, with some stressed tempered areas. Carbonitrided valve and sleeve, springs in C98 steel, seals in NBR and back-up ring PTFE

WORKING TEMPERATURE

-22ºF up to +230ºF (-30ºC up to +110ºC)

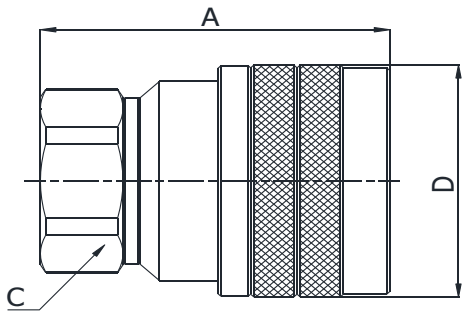
SAFETY FACTOR

4:1 for dynamic pressures

TEST SPECIFICATIONS

ISO 18869

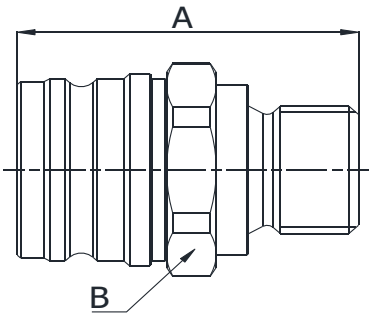
Safety cap for male coupling and female coupling with parking included



Q04811041A

BSP TERMINATION ENDS
TO DIN 3852 X TYPE

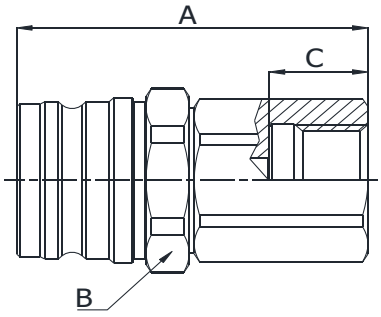
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	C			
12.5	1/2"	-08	Q04811041A-08-06	3/8"	55,5	ø44	32			
12.5	1/2"	-08	Q04811041A-08-08	1/2"	56,5	ø44	32			



Q04711050A

BSP TERMINATION ENDS
TO ISO 8434-6

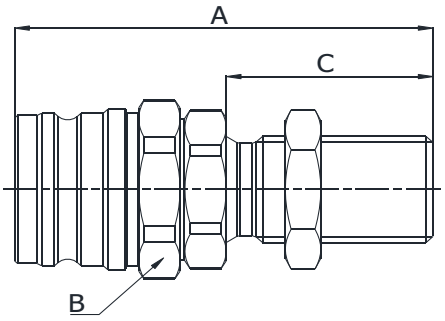
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B				
12.5	1/2"	-8	Q04711050A-08-08	1/2"	48	32				



Q04711041A

BSP TERMINATION ENDS
TO DIN 3852 X TYPE

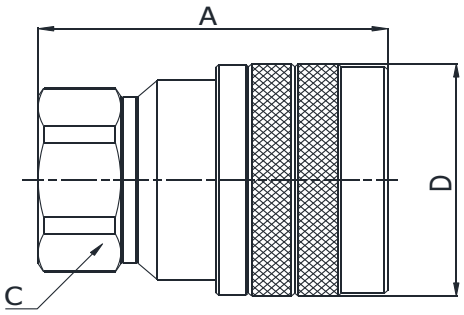
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B	C			
12.5	1/2"	-08	Q04711041A-08-08	1/2" GAS	57	32	16			



Q04711040A

BSP TERMINATION ENDS
TO ISO 8434-6
BULKHEAD

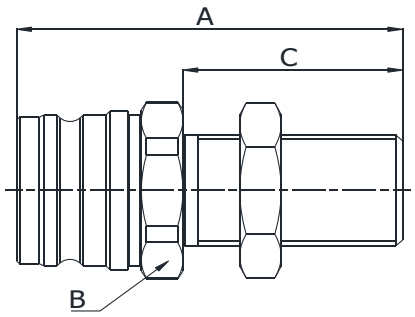
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B	C			
12.5	1/2"	-08	Q04711040A-08-08	1/2"	70.8	32	35			



Q04811141A

METRIC TERMINATION ENDS
TO DIN 3852 X TYPE

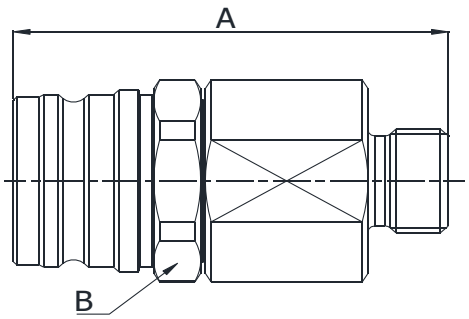
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	C			
12.5	1/2"	-08	Q04811141A-08-18	M18x1,5	55,5	ø44	32			



Q04711370A

METRIC TERMINATION ENDS
TO DIN 3863
BULKHEAD

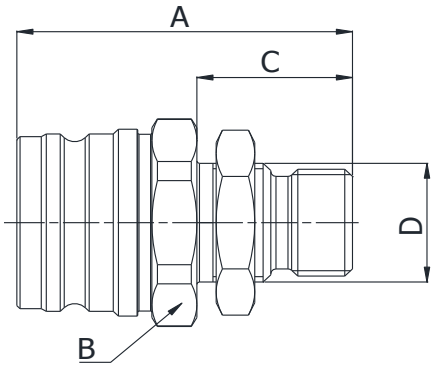
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B	C			
12.5	1/2"	-08	Q04711370A-08-22	M22x1,5	65	32	37			



Q04711110A

METRIC TERMINATION ENDS
TO ISO 8434-1
L SERIES

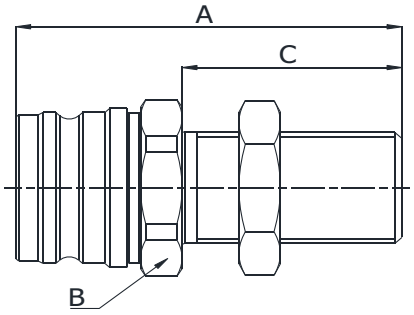
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B				
12.5	1/2"	-08	Q04711110A-08-18	M18x1,5	65	32				
12.5	1/2"	-08	Q04711110A-08-22	M22x1,5	64.7	32				



Q04711770A

METRIC TERMINATION END
TO ISO 8434-1
BULKHEAD

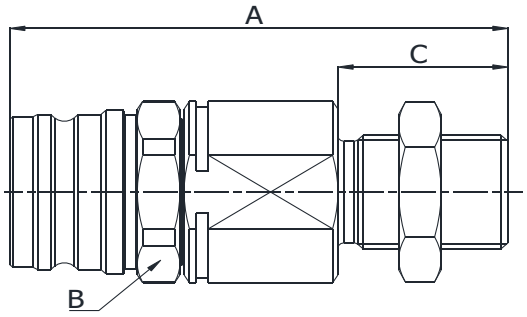
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B	C	D		
12.5	1/2"	-08	Q04711770A-08-16	M16x1.5	52.5	32	24.5	M20x1.5		
12.5	1/2"	-08	Q04711770A-08-18	M18x1.5	52	32	24	M20x1.5		



Q04711770A

METRIC TERMINATION END
TO ISO 8434-1
BULKHEAD L SERIES

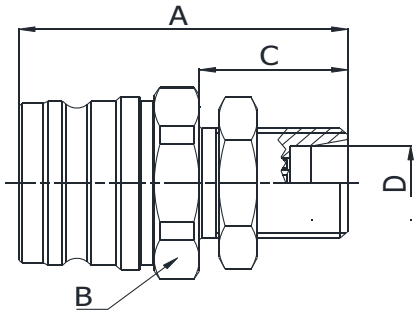
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B	C			
12.5	1/2"	-08	Q04711770A-08-22	M22x1,5	63	32	35			



Q04711770B

METRIC TERMINATION END
TO ISO 8434-1
BULKHEAD L SERIES

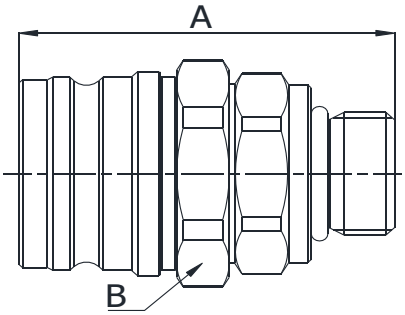
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B	C			
12.5	1/2"	-08	Q04711770B-08-22	M22x1,5	82	32	28			



Q04711820A

METRIC TERMINATION END
BULKHEAD

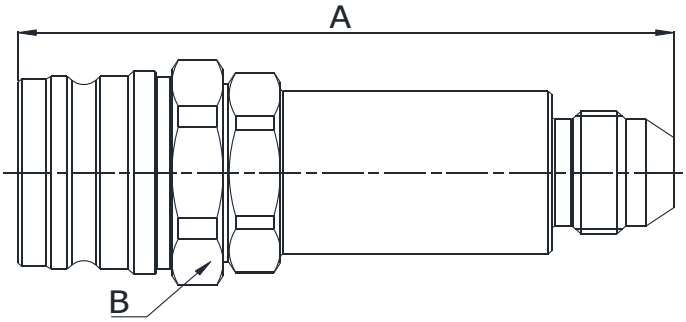
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B	C	D		
12.5	1/2"	-08	Q04711820A-08-20	M20x1,5	51	32	23	ø13,5		



Q04711300A

SAE TERMINATION END
TO SAE J1926-3

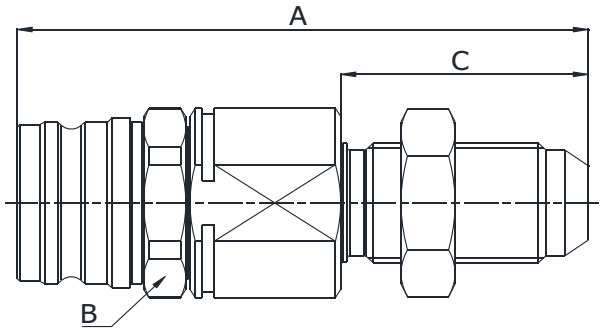
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B				
12.5	1/2"	-08	Q04711300A-08-08	3/4"-16 UNF	50	32				



Q04711250A

SAE TERMINATION ENDS
TO ISO 8434-2

SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B				
12.5	1/2"	-08	Q04711250A-08-08	3/4"-16 UNF	89.5	32				



Q04711230A

SAE TERMINATION ENDS
TO ISO 8434-2
BULKHEAD

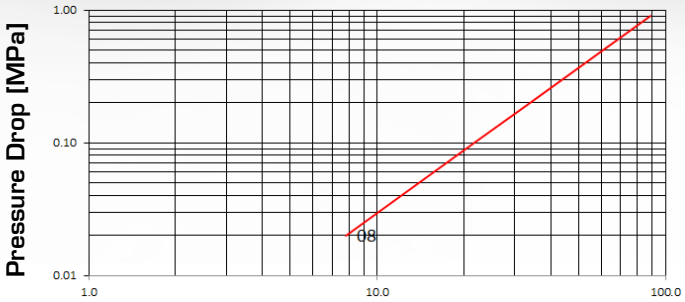
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B	C			
12.5	1/2"	-08	Q04711230A-08-10	7/8"-14 UNF	94.8	32	40.1			

manuli® HYDRAULICS

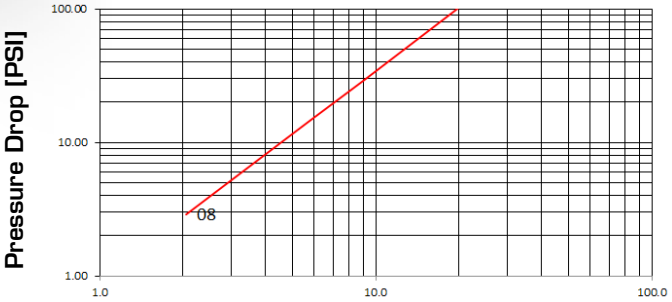
AGRICULTURAL VALVES



Pressure Drop



Pressure Drop



TECHNICAL DATA

SIZE			WORKING PRESSURE (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		OIL SPILLAGE Connection/ Disconnection		MINIMUM BURST PRESSURE						CONNECTION/ DISCONNECTION UNDER PRESSURE
									Male		Female		M & F		
DN	inch	Dash	MPa	PSI	l/min	US GPM	cc.	cubic inch	MPa	PSI	MPa	PSI	MPa	PSI	
12.5	½	08	20	2900	34	9.0	0.02	0.001	130	18850	80	11600	140	20300	ALLOWED

The rated flow represents the normal operating condition. The maximum recommended flow rate is equal to 1.5 times the rated flow

PRODUCT DESCRIPTION

- Trailer brake coupling specially designed to connect the hydraulic breaking system of tractors to trailers
- Connection and disconnection by screwing the sleeve
- Connection secured on the thread between the sleeve and the male coupling
- Flat-valve
- Connection and disconnection under pressure allowed
- The male has to be placed on the tractor and the female on the implement
- Interchangeable with similar products available on the market

MATERIAL

Female and male coupling in steel, with hardened stressed areas. Carbonitrided valve, springs in C98 steel, seals in NBR and back-up ring PTFE

WORKING TEMPERATURE

-22°F up to +230°F (-30°C up to +110°C)

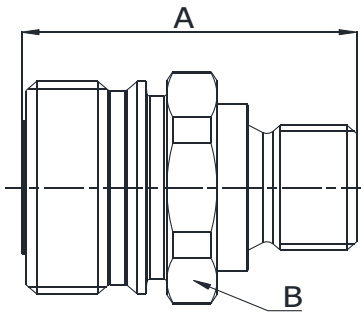
SAFETY FACTOR

4:1 for dynamic pressures

TEST SPECIFICATIONS

ISO 18869

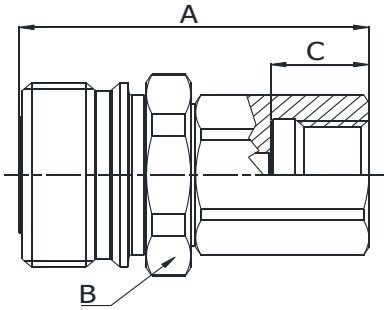
Safety cap for male coupling and female coupling with parking included



Q04911050A

BSP TERMINATION ENDS
TO ISO 8434-6

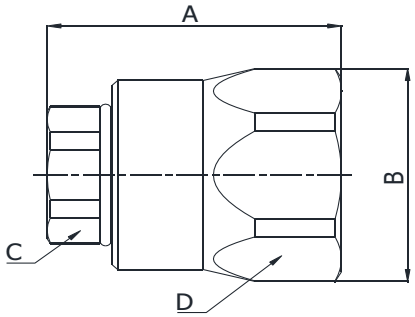
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B				
12.5	1/2"	-08	Q04911050A-08-08	1/2" GAS	48	36				



Q04911041A

BSP TERMINATION ENDS
TO DIN 3852 X TYPE

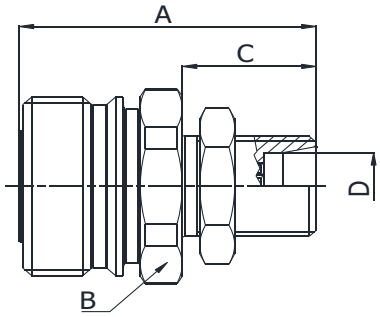
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B	C			
12.5	1/2"	-08	Q04911041A-08-08	1/2" BSP	57	36	16			



Q05011141A

METRIC TERMINATION ENDS
TO DIN 3852 X TYPE

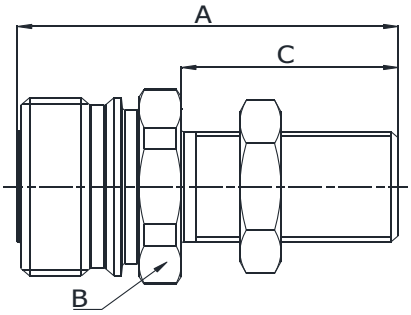
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling		A	B	C	D		
12.5	1/2"	-08	Q05011141A-08-18	M18x1,5	53.5	ø45	27	41		



Q04911820A

METRIC TERMINATION ENDS
BULKHEAD

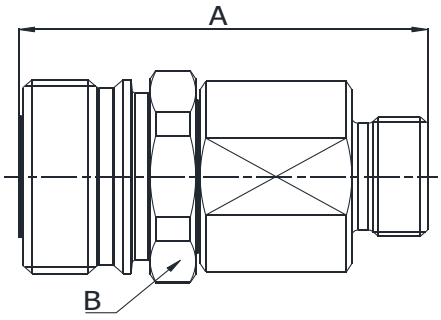
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B	C	D		
12.5	1/2"	-08	Q04911820A-08-20	M20x1,5	51	36	23	ø13,5		



Q04911370A

METRIC TERMINATION ENDS
TO DIN 3863
BULKHEAD

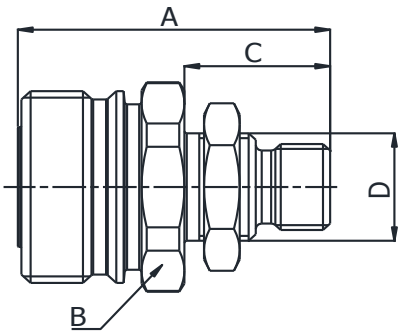
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B	C			
12.5	1/2"	-08	Q04911370A-08-22	M22x1,5	65	36	37			



Q04911110A

METRIC TERMINATION ENDS
TO ISO 8434-1
L SERIES

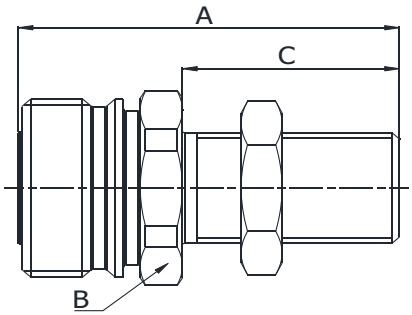
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B				
12.5	1/2"	-08	Q04911110A-08-18	M18x1,5	65	36				
12.5	1/2"	-08	Q04911110A-08-22	M22x1,5	64.7	36				



Q04911770A

METRIC TERMINATION END
TO ISO 8434-1
BULKHEAD

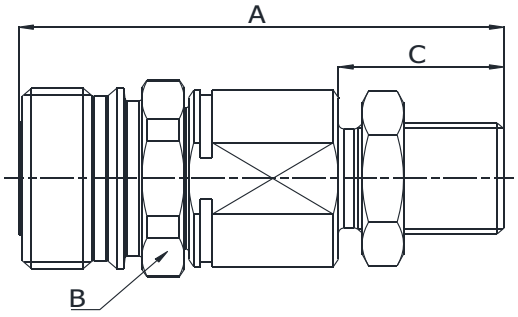
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B	C	D		
12.5	1/2"	-08	Q04911770A-08-16	M16x1,5	52.5	36	24.5	M20x1.5		
12.5	1/2"	-08	Q04911770A-08-18	M18x1,5	52	36	24	M20x1.5		



Q04911770A

METRIC TERMINATION END
TO ISO 8434-1
BULKHEAD L SERIES

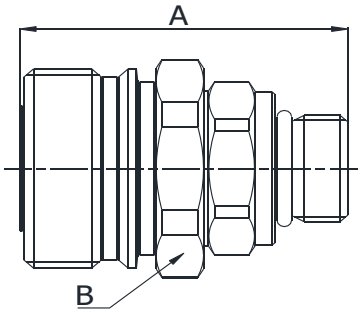
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B	C			
12.5	1/2"	-08	Q04911770A-08-22	M22x1,5	63	36	35			



Q04911770B

METRIC TERMINATION END
TO ISO 8434-1
BULKHEAD L SERIES

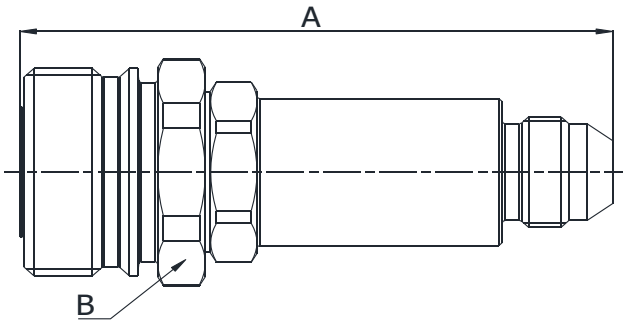
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B	C			
12.5	1/2"	-08	Q04911770B-08-22	M22x1,5	82	36	28			



Q04911300A

SAE TERMINATION END
TO SAE J1926-3

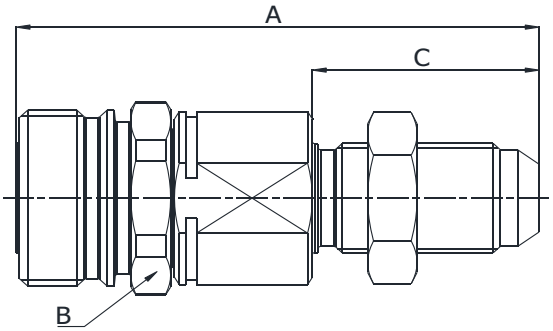
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B				
12.5	1/2"	-08	Q04911300A-08-08	3/4"-16 UNF	50	36				



Q04911250A

BSP TERMINATION ENDS
TO ISO 8434-6

SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B				
12.5	1/2"	-8	Q04711050A-08-08	1/2"	48	32				



Q04911230A

SAE TERMINATION ENDS
TO ISO 8434-2
BULKHEAD

SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B	C			
12.5	1/2"	-08	Q04911230A-08-10	7/8"-14 UNF	94.8	36	40.1			

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DIAGNOSTIC



TECHNICAL DATA

SIZE			WORKING PRESSURE (Dynamic)		MINIMUM BURST PRESSURE	
DN	inch	Dash	MPa	PSI	Male	
					MPa	PSI
5	⅛	02	42	6090	250	36250

PRODUCT DESCRIPTION

- Quick coupling purposely designed to easily access hydraulic systems for performance testing
- Installing male coupling in several parts of the hydraulic system, a reliable diagnosis can be carried out in a short time
- Connection by pushing the male coupling in the female of vice-versa
- Disconnection by pulling back the sleeve
- Retaining by ball latching system
- Shut-off system by flat valve
- Wide range of termination ends available on request and protective cap
- Interchangeability according to ISO 15171-1 and SAE J1502

MATERIAL

Male coupling in steel, with some hardened areas in correspondence to the most stressed points. Carbonitrided valve, spring in C98 steel and seals in NBR (other materials on request)

WORKING TEMPERATURE

-22°F up to +230°F (-30°C up to +110°C)
For different temperature range, the coupling can be assembled with specific seals

SAFETY FACTOR

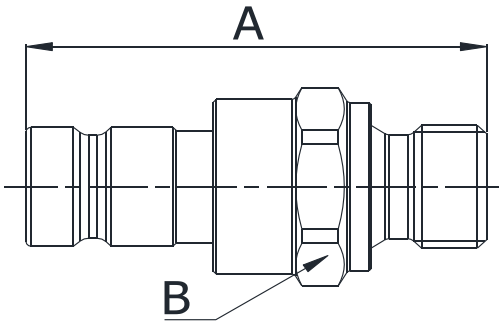
4:1 for dynamic pressures

IMPULSE PRESSURES

1,000,000 cycles at 133% of the rated one (freq. 1Hz)

TEST SPECIFICATIONS

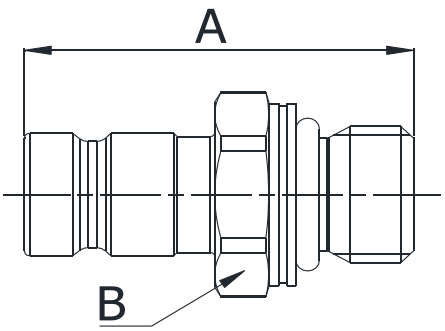
ISO 18869



Q04511050A

BSP TERMINATION ENDS
TO ISO 8434-6

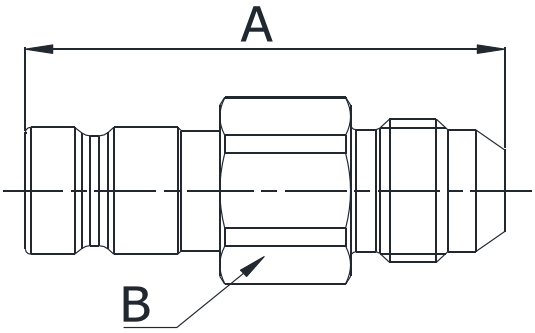
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B				
5	1/8"	-02	Q04511050A-02-04	3/8"	43.8	19				



Q04511190A

METRIC TERMINATION ENDS
TO ISO 6149-2

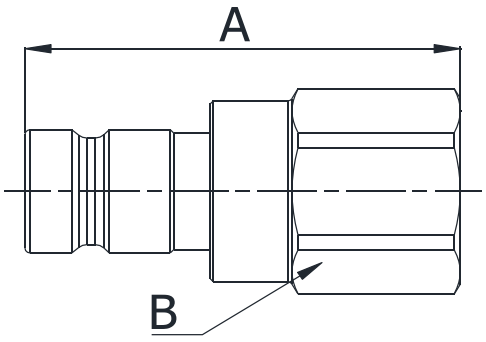
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B				
5	1/8"	-02	Q04511190A-02-14	M14x1,5	36.4	19				



Q04511250A

SAE TERMINATION ENDS
TO ISO 8434-2

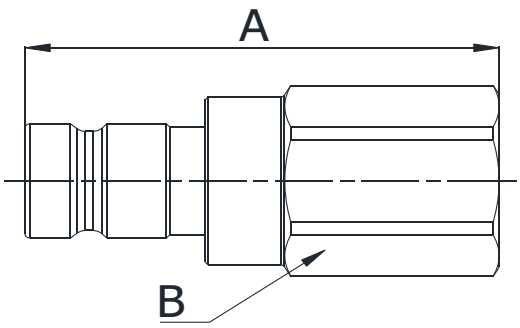
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B				
5	1/8"	-02	Q04511250A-02-06	3/8"	43.9	17				



Q04511251A

SAE TERMINATION ENDS
TO ISO 8434-2

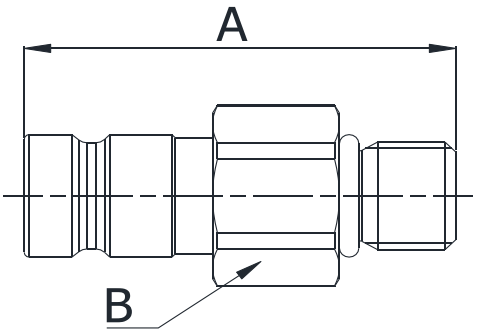
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B				
5	1/8"	-02	Q04511251A-02-06	3/8"	41.8	19				



Q04511301A

SAE TERMINATION ENDS
TO SAE J1926-1

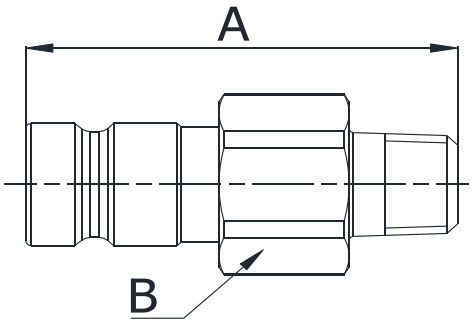
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B				
5	1/8"	-02	Q04511301A-02-06	9/16"-18 UNF	46.8	19				



Q04511320A

SAE TERMINATION ENDS
TO SAE J1926-2

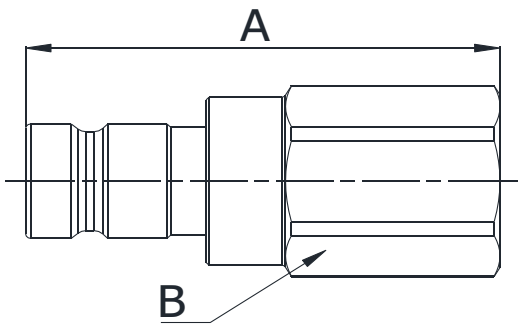
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B				
5	1/8"	-02	Q04511320A-02-04	7/16"-20 UNF	40.8	17				
5	1/8"	-02	Q04511320A-02-06	9/16"-18 UNF	37.4	17				



Q04511280A

NPTF TERMINATION ENDS
TO ANSI B 1.20.3

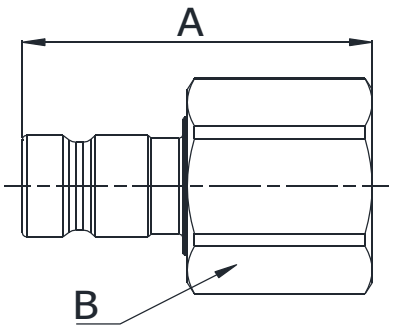
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B				
5	1/8"	-02	Q04511280A-02-02	1/8" NPTF	39.8	17				
5	1/8"	-02	Q04511280A-02-04	1/4" NPTF	44.3	17				
5	1/8"	-02	Q04511280A-02-06	3/8" NPTF	39.9	19				



Q04511341A

NPTF TERMINATION ENDS
TO ANSI B 1.20.3

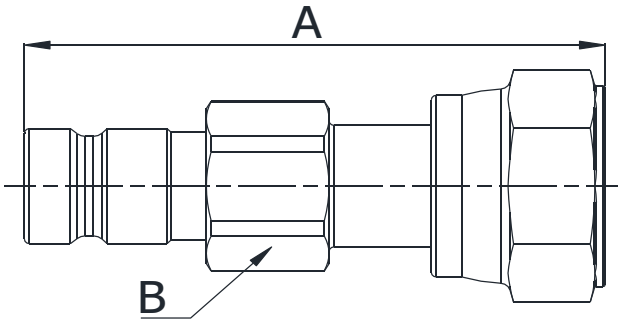
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B				
5	1/8"	-02	Q04511341A-02-02	1/8" NPTF	37.8	17				
5	1/8"	-02	Q04511341A-02-04	1/4" NPTF	45.8	17				



Q04511241A

ORFS TERMINATION ENDS
TO SAE J1453

SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B				
5	1/8"	-02	Q04511241A-02-08	13/16"-16 UN	38.8	24				



Q04511241A

ORFS TERMINATION ENDS
TO SAE J1453

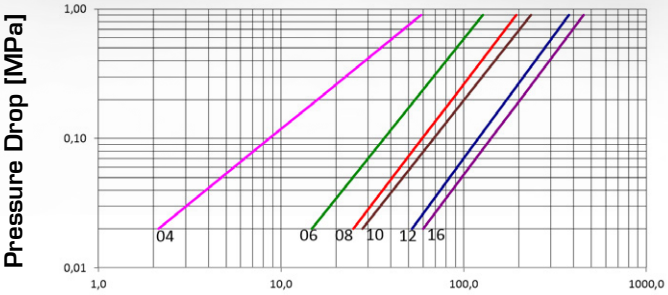
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B				
5	1/8"	-02	Q04511241A-02-04	9/16"-16 UNF	53	17				
5	1/8"	-02	Q04511241A-02-06	11/16"-16 UN	56.8	17				

manuli HYDRAULICS

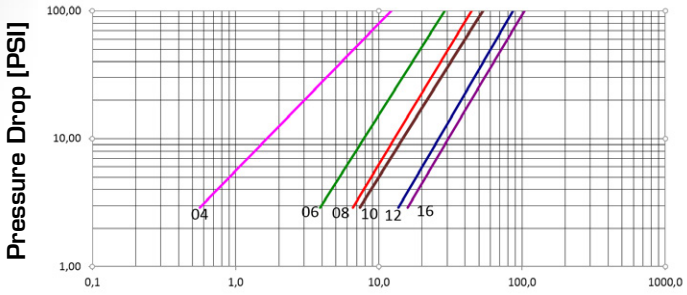
FLAT FACE



Pressure Drop



Pressure Drop



TECHNICAL DATA

SIZE			WORKING PRESSURE CONNECTED (Dynamic)		WORKING PRESSURE DISCONNECTED (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		CONNECTION EFFORT		OIL SPILLAGE Connection/ Disconnection		MINIMUM BURST PRESSURE						CONNECTION WITH FEMALE UNDER PRESSURE (MALE AT 0 MPa)
													Male		Female		M & F		
DN	inch	Dash	MPa	PSI	MPa	PSI	l/min	US GPM	N	lb.	cc.	cubic inch	MPa	PSI	MPa	PSI	MPa	PSI	
6.3	1/4"	04	35	5075	32	4640	16	4.2	120	27.0	0.005	0.0003	180	26100	130	18850	160	23200	Allowed up to 6 MPa
10	3/8"	06	35	5075	25	3625	54	14.3	130	29.2	0.007	0.0004	135	19575	125	18125	140	20300	Allowed up to 6 MPa
12.5	1/2"	08	35	5075	25	3625	86	22.7	150	33.7	0.008	0.0005	120	17400	110	15950	145	21025	Allowed up to 4 MPa
16	5/8"	10	35	5075	25	3625	101	26.7	160	36.0	0.008	0.0005	150	21750	100	14500	160	23200	Allowed up to 3 MPa
19	3/4"	12	35	5075	25	3625	172	45.4	210	47.2	0.009	0.0005	100	14500	105	15225	140	20300	Allowed up to 2 MPa
25	1"	16	35	5075	21	3045	204	53.9	210	47.2	0.02	0.0012	105	15225	85	12325	145	21025	Allowed up to 2 MPa

Connection with Male under pressure not allowed; Disconnection under pressure not allowed

The rated flow represents the normal operating condition. The maximum recommended flow rate is equal to 1.5 times the rated flow

PRODUCT DESCRIPTION

- Flat mating surfaces easily wiped clean to prevent contamination and spillage during connection/disconnection
- Connection is made by pushing the male coupling and disconnection by pulling back the sleeve of the female
- Safety system on female part to prevent accidental disconnection
- Positive, quick connection of the male into the female by the latching ball system
- Shut-off by flat valve
- Interchangeability according to ISO 16028 and HTMA standards (only for ⅜")
- 1,000,000 cycles at 120% of rated (freq. 1Hz - connected conditions)

MATERIAL

Female and male coupling in steel, with some stressed tempered or carbonitrided areas. Springs in AISI and C98 steel, seals in polyurethane and NBR. Other materials (VITON, EPDM or any others) on request

WORKING TEMPERATURE

-22°F up to +230°F (-30°C up to +110°C)
For other temperatures the coupling is assembled with the specified seals

SAFETY FACTOR

4:1 for dynamic pressures

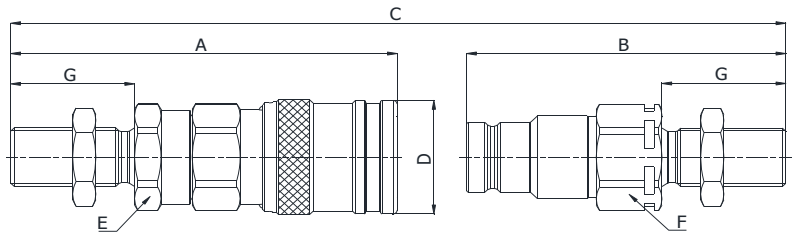
IMPULSE PRESSURES

100,000 cycles at 133% of the rated one (freq. 1Hz) in disconnected conditions. 1,000,000 cycles at 120% of rated one (freq. 1Hz) in connected conditions.

TEST SPECIFICATIONS

ISO 18869

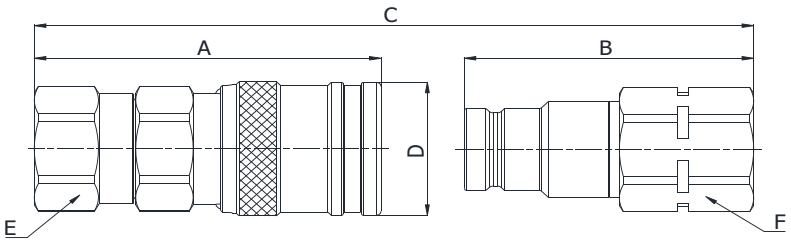
Q04111040A
Q03911040A



BSP TERMINATION ENDS
TO ISO 8434-6
BULKHEAD

SIZE			PART NUMBER		THREAD	DIMENSIONS mm						
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F	G
10	3/8"	-06	Q04111040A-06-06	Q03911040A-06-06	3/8"	99.9	82.5	A+B-16,4	ø32	27	27	32

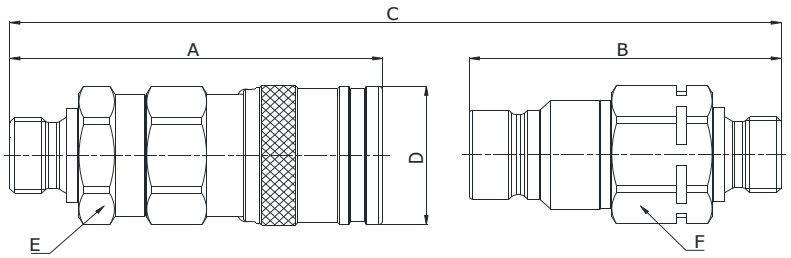
Q04111041A
Q03911041A



BSP TERMINATION ENDS
TO DIN 3852 X TYPE

SIZE			PART NUMBER		THREAD	DIMENSIONS mm							
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F		
6.3	1/4"	-04	Q04111041A-04-04	Q03911041A-04-04	1/4"	63.6	52.1	A+B-11,1	ø28	24	22		
6.3	1/4"	-04	Q04111041A-04-06	Q03911041A-04-06	3/8"	63.6	53.6	A+B-11,1	ø28	24	22		
10	3/8"	-06	Q04111041A-06-06	Q03911041A-06-06	3/8"	74.9	62.5	A+B-15,9	ø32	27	27		
10	3/8"	-06	Q04111041A-06-08	Q03911041A-06-08	1/2"	77.9	65.5	A+B-15,9	ø32	27	27		
12.5	1/2"	-08	Q04111041A-08-06	Q03911041A-08-06	3/8"	81.7	72.5	A+B-17,1	ø38	34	34		
12.5	1/2"	-08	Q04111041A-08-08	Q03911041A-08-08	1/2"	84.7	72.5	A+B-17,1	ø38	34	34		
12.5	1/2"	-08	Q04111041A-08-12	Q03911041A-08-12	3/4"	86.7	74.5	A+B-17,1	ø38	34	34		
16	5/8"	-10	Q04111041A-10-12	Q03911041A-10-12	3/4"	89.9	75.1	A+B-17,6	ø42	34	34		
20	3/4"	-12	Q04111041A-12-08	Q03911041A-12-08	1/2"	105.9	88.5	A+B-21.7	ø48	41	41		
20	3/4"	-12	Q04111041A-12-12	Q03911041A-12-12	3/4"	105.9	88.5	A+B-21,7	ø48	41	41		
20	3/4"	-12	Q04111041A-12-16	Q03911041A-12-16	1"	108.9	91.5	A+B-21,7	ø48	41	41		
25	1"	-16	Q04111041A-16-16	Q03911041A-16-16	1"	114.5	89.8	A+B-22,9	ø55	50	50		
25	1"	-16	Q04111041A-16-20	Q03911041A-16-20	1.1/4"	117	94.8	A+B-22,9	ø55	50	50		

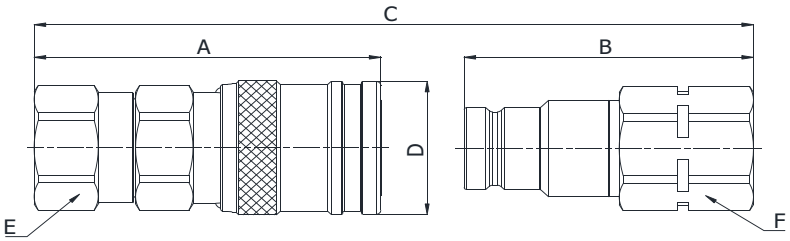
Q04111050A
Q03911050A



BSP TERMINATION ENDS
TO ISO 8434-6

SIZE			PART NUMBER		THREAD	DIMENSIONS mm							
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F		
10	3/8"	-06	Q04111050A-06-06	Q03911050A-06-06	3/8"	82.6	65.2	A+B-15,9	ø32	27	27		
10	3/8"	-06	Q04111050A-06-08	Q03911050A-06-08	1/2"	85.1	67.7	A+B-15,9	ø32	27	27		
12.5	1/2"	-08	Q04111050A-08-08	Q03911050A-08-08	1/2"	92.9	77.7	A+B-17,1	ø38	34	34		
12.5	1/2"	-08	Q04111050A-08-12	Q03911050A-08-12	3/4"	94.9	79.7	A+B-17,1	ø38	34	34		
16	5/8"	-10	Q04111050A-10-12	Q03911050A-10-12	3/4"	95.6	80.3	A+B-17,6	ø42	34	34		

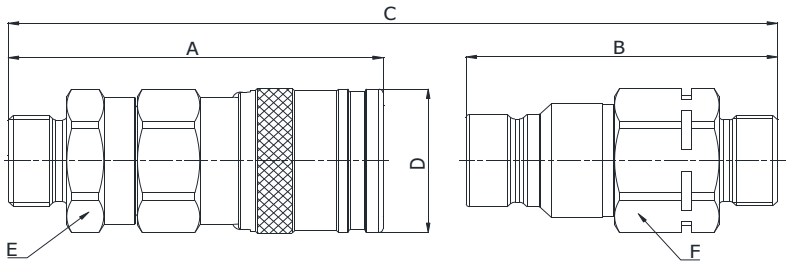
Q04111141A
Q03911141A



METRIC TERMINATION ENDS
TO ISO 3852-1 X TYPE

SIZE			PART NUMBER		THREAD	DIMENSIONS mm							
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F		
6.3	1/4"	-04	Q04111141A-04-16	Q03911141A-04-16	M16x1,5	63.6	53.6	A+B-11,1	ø28	24	22		
10	3/8"	-06	Q04111141A-06-18	Q03911141A-06-18	M18x1,5	77.9	62.5	A+B-15,9	ø32	27	27		
10	3/8"	-06	Q04111141A-06-22	Q03911141A-06-22	M22x1,5	77.9	64.5	A+B-15,9	ø32	27	27		

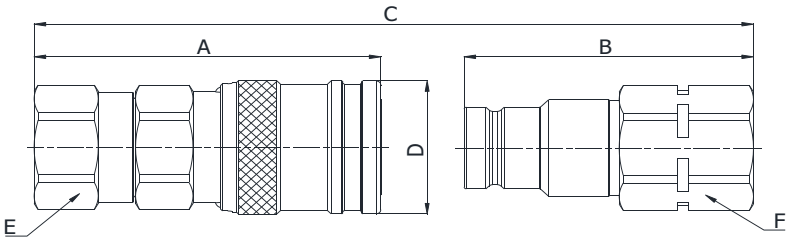
Q04111120A
Q03911120A



METRIC TERMINATION END
TO ISO 8434-1
S SERIES

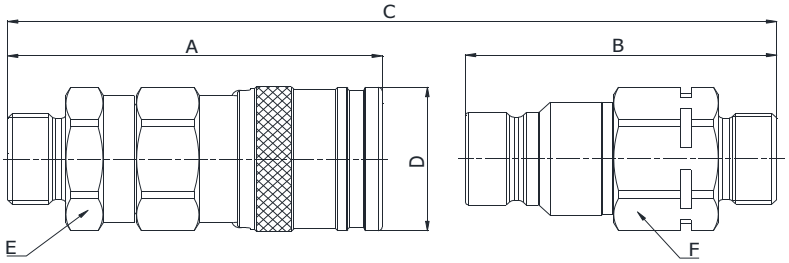
SIZE			PART NUMBER		THREAD	DIMENSIONS mm							
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F		
6.3	1/4"	-04	Q04111120A-04-16	Q03911120A-04-16	M16x1,5	69.6	51.1	A+B-11,1	ø28	24	22		
6.3	1/4"	-04	Q04111120A-04-18	Q03911120A-04-18	M18x1,5	69.6	51.1	A+B-11,1	ø28	24	22		
10	3/8"	-06	Q04111120A-06-18	Q03911120A-06-18	M18x1,5	79.9	62.5	A+B-15,9	ø32	27	27		
10	3/8"	-06	Q04111120A-06-20	Q03911120A-06-20	M20x1,5	79.9	62.5	A+B-15,9	ø32	27	27		
12.5	1/2"	-08	Q04111120A-08-20	Q03911120A-08-20	M20x1,5	87.7	72.5	A+B-17,1	ø38	34	34		
12.5	1/2"	-08	Q04111120A-08-24	Q03911120A-08-24	M24x1,5	87.7	74.5	A+B-17,1	ø38	34	34		
20	3/4"	-12	Q04111120A-12-30	Q03911120A-12-30	M30x2	105.9	90.5	A+B-21,7	ø48	41	41		

Q04111191A
Q03911191A



METRIC TERMINATION ENDS
TO ISO 6149-1

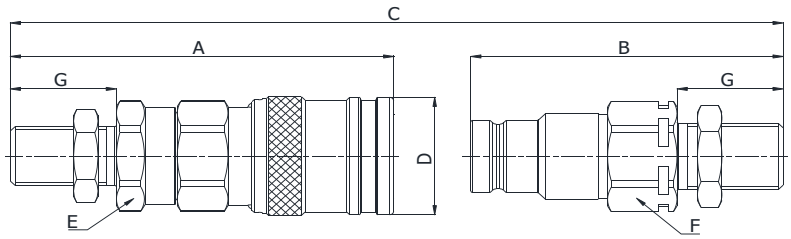
SIZE			PART NUMBER		THREAD	DIMENSIONS mm							
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F		
10	3/8"	-06	Q04111191A-06-16	Q03911191A-06-16	M16x1,5	75.4	63	A+B-15,9	ø32	27	27		
10	3/8"	-06	Q04111191A-06-18	Q03911191A-06-18	M18x1,5	76.9	64.5	A+B-15,9	ø32	27	27		



Q04111110A
Q03911110A

METRIC TERMINATION END
TO ISO 8434-1
L SERIES

SIZE			PART NUMBER		THREAD	DIMENSIONS mm							
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F		
6.3	1/4"	-04	Q04111110A-04-12	Q03911110A-04-12	M16x1,5	68.6	50.1	A+B-11,1	ø28	24	22		
6.3	1/4"	-04	Q04111110A-04-14	Q03911110A-04-14	M14x1,5	68.6	50.1	A+B-11,1	ø28	24	22		
6.3	1/4"	-04	Q04111110A-04-16	Q03911110A-04-16	M16x1,5	68.6	50.1	A+B-11,1	ø28	24	22		
10	3/8"	-06	Q04111110A-06-14	Q03911110A-06-14	M14x1,5	77.9	61.5	A+B-15,9	ø32	27	27		
10	3/8"	-06	Q04111110A-06-16	Q03911110A-06-16	M16x1,5	78.9	62.5	A+B-15,9	ø32	27	27		
10	3/8"	-06	Q04111110A-06-18	Q03911110A-06-18	M18x1,5	78.9	61.5	A+B-15,9	ø32	27	27		
10	3/8"	-06	Q04111110A-06-22	Q03911110A-06-22	M22x1,5	79.9	62.5	A+B-15,9	ø32	27	27		
12.5	1/2"	-08	Q04111110A-08-18	Q03911110A-08-18	M18x1,5	86.7	72.5	A+B-17,1	ø38	34	34		
12.5	1/2"	-08	Q04111110A-08-22	Q03911110A-08-22	M22x1,5	87.7	72.5	A+B-17,1	ø38	34	34		
12.5	1/2"	-08	Q04111110A-08-26	Q03911110A-08-26	M26x1,5	87.7	72.5	A+B-17,1	ø38	34	34		
20	3/4"	-12	Q04111110A-12-26	Q03911110A-12-26	M26x1,5	101.9	86.5	A+B-21,7	ø48	41	41		
20	3/4"	-12	Q04111110A-12-30	Q03911110A-12-30	M30x2	103.9	88.5	A+B-21,7	ø48	41	41		
25	1"	-16	Q04111110A-16-30	Q03911110A-16-30	M30x2	110.5	79.8	A+B-22,9	ø55	50	50		

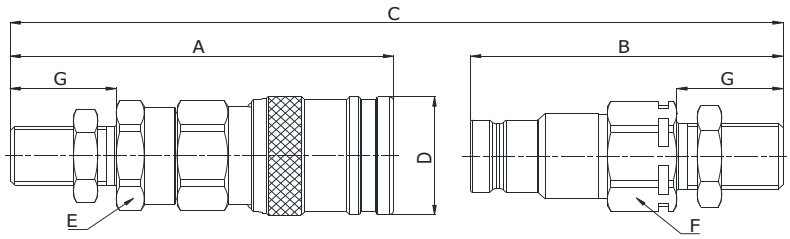


Q04111770B
Q03911770B

METRIC TERMINATION END
TO ISO 8434-1
BULKHEAD L SERIES

SIZE			PART NUMBER		THREAD	DIMENSIONS mm						
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F	G
6.3	1/4"	-04	Q04111770B-04-12	Q03911770B-04-12	M12x1,5	82.6	65.1	A+B-11,1	ø28	24	22	25
6.3	1/4"	-04	Q04111770B-04-14	Q03911770B-04-14	M14x1,5	82.6	64.1	A+B-11,1	ø28	24	22	25
6.3	1/4"	-04	Q04111770B-04-16	Q03911770B-04-16	M16x1,5	83.6	64.1	A+B-11,1	ø28	24	22	26
10	3/8"	-06	Q04111770B-06-16	Q03911770B-06-16	M16x1,5	93.9	76.5	A+B-15,9	ø32	27	27	26
10	3/8"	-06	Q04111770B-06-18	Q03911770B-06-18	M18x1,5	93.9	76.5	A+B-15,9	ø32	27	27	26
10	3/8"	-06	Q04111770B-06-22	Q03911770B-06-22	M22x1,5	94.9	77.5	A+B-15,9	ø32	27	27	27
12.5	1/2"	-08	Q04111770B-08-18	Q03911770B-08-18	M18x1,5	101.7	86.5	A+B-17,1	ø38	34	34	26
12.5	1/2"	-08	Q04111770B-08-22	Q03911770B-08-22	M22x1,5	102.7	87.5	A+B-17,1	ø38	34	34	27
12.5	1/2"	-08	Q04111770B-08-26	Q03911770B-08-26	M26x1,5	103.7	88.5	A+B-17,1	ø38	34	34	28
20	3/4"	-12	Q04111770B-12-26	Q03911770B-12-26	M26x1,5	114.9	102.5	A+B-21,7	ø48	41	41	29
20	3/4"	-12	Q04111770B-12-30	Q03911770B-12-30	M30x2	118.9	106.5	A+B-21,7	ø48	41	41	32

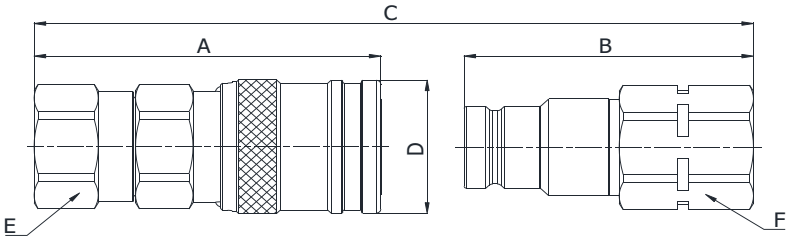
Q04111870B
Q03911870B



METRIC TERMINATION END
TO ISO 8434-1
BULKHEAD S SERIES

SIZE			PART NUMBER		THREAD	DIMENSIONS mm						
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F	G
6.3	1/4"	-04	Q04111870B-04-16	Q03911870B-04-16	M16x1,5	83.6	65.1	A+B-11,1	ø28	24	22	27
6.3	1/4"	-04	Q04111870B-04-18	Q03911870B-04-18	M18x1,5	83.6	65.1	A+B-11,1	ø28	24	22	27
10	3/8"	-06	Q04111870B-06-18	Q03911870B-06-18	M18x1,5	94.9	77.5	A+B-15,9	ø32	27	27	27
10	3/8"	-06	Q04111870B-06-20	Q03911870B-06-20	M20x1,5	94.9	77.5	A+B-15,9	ø32	27	27	27
12.5	1/2"	-08	Q04111870B-08-24	Q03911870B-08-24	M24x1,5	104.7	89.5	A+B-17,1	ø38	34	34	29
20	3/4"	-12	Q04111870B-12-30	Q03911870B-12-30	M30x2	119.9	108.5	A+B-21,7	ø48	41	41	34
25	1"	-16	Q04111870B-16-36	Q03911870B-16-36	M36x2	128.5	101.8	A+B-22,9	ø55	50	50	36

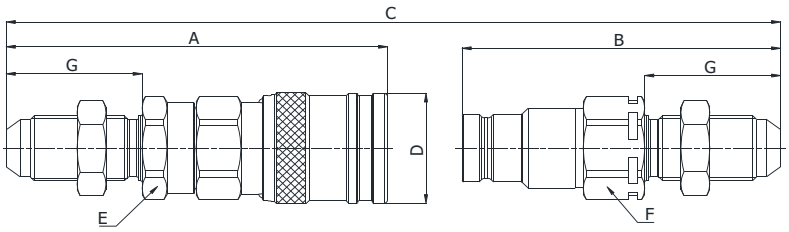
Q04111341A
Q03911341A



NPTF TERMINATION END
TO ANSI B 1.20.3

SIZE			PART NUMBER		THREAD	DIMENSIONS mm							
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F		
6.3	1/4"	-04	Q04111341A-04-04	Q03911341A-04-04	1/4" NPTF	63.6	52.1	A+B-11,1	ø28	24	22		
10	3/8"	-06	Q04111341A-06-06	Q03911341A-06-06	3/8" NPTF	74.9	62.5	A+B-15,9	ø32	27	27		
10	3/8"	-06	Q04111341A-06-08	Q03911341A-06-08	1/2" NPTF	77.9	65.5	A+B-15,9	ø32	27	27		
12.5	1/2"	-08	Q04111341A-08-08	Q03911341A-08-08	1/2" NPTF	84.7	72.5	A+B-17,1	ø38	34	34		
12.5	1/2"	-08	Q04111341A-08-12	Q03911341A-08-12	3/4" NPTF	86.7	74.5	A+B-17,1	ø38	34	34		
16	5/8"	-10	Q04111341A-10-08	Q03911341A-10-08	1/2" NPTF	87.9	73.1	A+B-17,6	ø42	34	34		
16	5/8"	-10	Q04111341A-10-12	Q03911341A-10-12	3/4" NPTF	89.9	75.1	A+B-17,6	ø42	34	34		
20	3/4"	-12	Q04111341A-12-12	Q03911341A-12-12	3/4" NPTF	105.9	88.5	A+B-21,7	ø48	41	41		
20	3/4"	-12	Q04111341A-12-16	Q03911341A-12-16	1" NPTF	108.9	91.5	A+B-21,7	ø48	41	41		
25	1"	-16	Q04111341A-16-16	Q03911341A-16-16	1" NPTF	114.5	89.8	A+B-22,9	ø55	50	50		
25	1"	-16	Q04111341A-16-20	Q03911341A-16-20	1.1/4" NPTF	116.6	94.8	A+B-23,3	ø55	50	50		

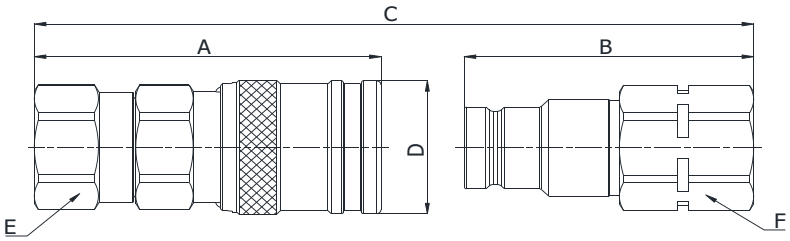
Q04111230A
Q03911230A



SAE TERMINATION END
TO ISO 8434-2
BULKHEAD

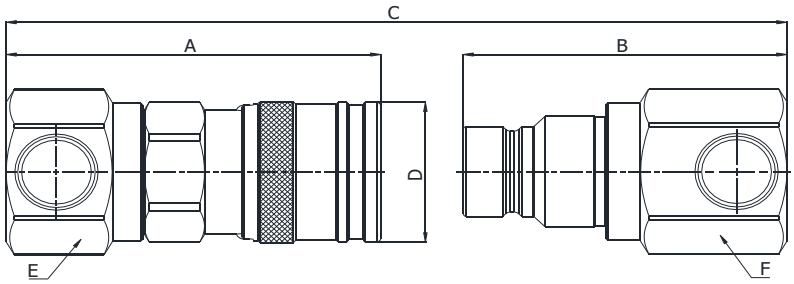
SIZE			PART NUMBER		THREAD	DIMENSIONS mm						
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F	G
10	3/8"	-06	Q04111230A-06-08	Q03911230A-06-08	3/4"-16 UNF	105.5	88.1	A+B-15,9	ø32	27	27	36.6
10	3/8"	-06	Q04111230A-06-10	Q03911230A-06-10	7/8"-14 UNF	109	91.6	A+B-15,9	ø32	27	27	40.1
12.5	1/2"	-08	Q04111230A-08-10	Q03911230A-08-10	7/8"-14 UNF	116.8	101.6	A+B-17,1	ø38	34	34	40.1
12.5	1/2"	-08	Q04111230A-08-12	Q03911230A-08-12	1.1/16"-12 UN	121.1	105.9	A+B-17,1	ø38	34	34	44.4

Q04111301A
Q03911301A



SAE TERMINATION END
TO SAE J1926-1

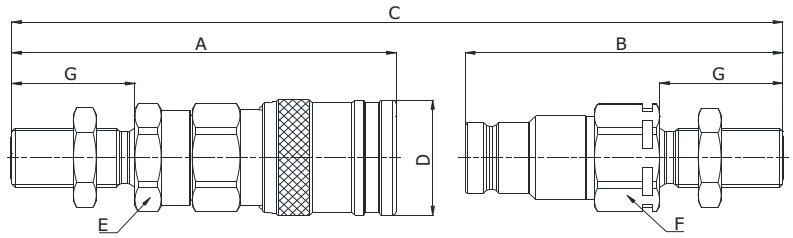
SIZE			PART NUMBER		THREAD	DIMENSIONS mm							
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F		
6.3	1/4"	-04	Q04111301A-04-06	Q03911301A-04-06	9/16"-18 UNF	63.6	53.6	A+B-11,1	ø28	24	22		
10	3/8"	-06	Q04111301A-06-06	Q03911301A-06-06	9/16"-18 UNF	75.4	63	A+B-15,9	ø32	27	27		
10	3/8"	-06	Q04111301A-06-08	Q03911301A-06-08	3/4"-16 UNF	77.4	65	A+B-15,9	ø32	27	27		
10	3/8"	-06	Q04111301A-06-10	Q03911301A-06-10	7/8"-14 UNF	79.9	67.5	A+B-15,9	ø32	27	27		
12.5	1/2"	-08	Q04111301A-08-08	Q03911301A-08-08	3/4"-16 UNF	84.2	72	A+B-17,1	ø38	34	34		
12.5	1/2"	-08	Q04111301A-08-10	Q03911301A-08-10	7/8"-14 UNF	86.7	74.5	A+B-17,1	ø38	34	34		
12.5	1/2"	-08	Q04111301A-08-12	Q03911301A-08-12	1.1/16"-12 UN	89.7	77.5	A+B-17,1	ø38	34	34		
16	5/8"	-10	Q04111301A-10-08	Q03911301A-10-08	3/4"-16 UNF	87.4	72.6	A+B-17,6	ø42	34	34		
16	5/8"	-10	Q04111301A-10-10	Q03911301A-10-10	7/8"-14 UNF	89.9	75.1	A+B-17,6	ø42	34	34		
16	5/8"	-10	Q04111301A-10-12	Q03911301A-10-12	1.1/16"-12 UN	92.9	78.1	A+B-17,6	ø42	34	34		
20	3/4"	-12	Q04111301A-12-12	Q03911301A-12-12	1.1/16"-12 UN	108.9	91.5	A+B-21,7	ø48	41	41		
20	3/4"	-12	Q04111301A-12-16	Q03911301A-12-16	1.5/16"-12 UN	108.9	91.5	A+B-21,7	ø48	41	41		
25	1"	-16	Q04111301A-16-16	Q03911301A-16-16	1.5/16"-12 UN	114.5	89.8	A+B-22,9	ø55	50	50		



Q04111301B
Q03911301B

SAE TERMINATION END
TO SAE J1926-1

SIZE			PART NUMBER		THREAD	DIMENSIONS mm							
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F		
10	3/8"	-06	Q04111301B-06-06	Q03911301B-06-06	9/16"-18 UNF	84.9	72.5	A+B-15,9	ø32	34	34		
12.5	1/2"	-08	Q04111301B-08-08	Q03911301B-08-08	3/4"-16 UNF	93.2	80.5	A+B-17,1	ø38	41	41		



Q04111270A
Q03911270A

ORFS TERMINATION ENDS
TO ISO 8434-3
BULKHEAD

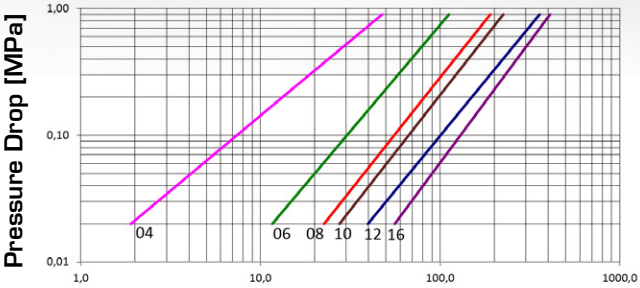
SIZE			PART NUMBER		THREAD	DIMENSIONS mm							
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F	G	H
10	3/8"	-06	Q04111270A-06-08	Q03911270A-06-08	13/16"-16 UN	104.4	87	A+B-16,4	ø32	27	27	36.5	36.5

manuli HYDRAULICS

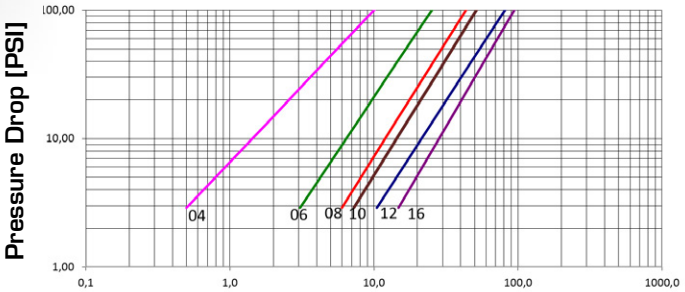


FLAT FACE HIGH PRESSURE

Pressure Drop



Pressure Drop



TECHNICAL DATA

SIZE			WORKING PRESSURE CONNECTED (Dynamic)		WORKING PRESSURE DISCONNECTED (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		CONNECTION EFFORT		OIL SPILLAGE Connection/ Disconnection		MINIMUM BURST PRESSURE						CONNECTION WITH FEMALE UNDER PRESSURE (MALE AT 0 MPa)
													Male		Female		M & F		
DN	inch	Dash	MPa	PSI	MPa	PSI	l/min	US GPM	N	lb.	cc.	cubic inch	MPa	PSI	MPa	PSI	MPa	PSI	
6.3	¼	04	35	5075	35	5075	13	3.4	120	27.0	0.005	0.0003	180	26100	150	21750	190	27550	Allowed up to 6 MPa
10	⅜	06	35	5075	35	5075	46	12.2	130	29.2	0.007	0.0004	170	24650	140	20300	170	24650	Allowed up to 6 MPa
12.5	½	08	35	5075	35	5075	82	21.7	150	33.7	0.008	0.0005	160	23200	150	21750	170	24650	Allowed up to 4 MPa
16	⅝	10	35	5075	35	5075	98	25.9	160	36.0	0.008	0.0005	170	24650	150	21750	170	24650	Allowed up to 3 MPa
19	¾	12	35	5075	35	5075	150	39.6	210	47.2	0.009	0.0005	150	21750	150	21750	160	23200	Allowed up to 2 MPa
25	1	16	35	5075	35	5075	186	49.1	210	47.2	0.02	0.0012	160	23200	170	24650	160	23200	Allowed up to 2 MPa

Connection with Male under pressure not allowed; Disconnection under pressure not allowed
The rated flow represents the normal operating condition. The maximum recommended flow rate is equal to 1.5 times the rated flow

PRODUCT DESCRIPTION

- MQS-FH is the flat-face line for heavy-duty application setting with 35MPa of working pressure in connected and disconnected conditions
- Push connection and pulling back the sleeve for disconnection
- Safety system on female part to prevent accidental disconnection
- Interchangeable with ISO 16028
- 1 Million impulse cycles qualified
- E-Coat 1000 plating

MATERIAL

Female & male couplings in high grade carbon steel with hardened areas in correspondence to the most stressed points. Male vs. female Sealing system in new Polyurethane compound; other seals in NBR with back-up in PTFE.

WORKING TEMPERATURE

-22°F up to +230°F (-30°C up to +110°C)

SAFETY FACTOR

4:1 for dynamic pressures

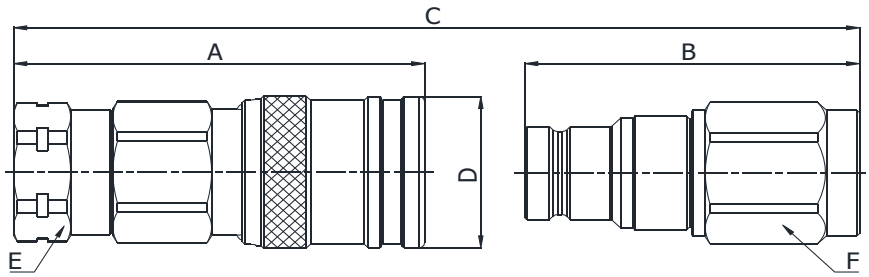
IMPULSE PRESSURES

1,000,000 cycles at 120% of rated one (freq. 1Hz)

TEST SPECIFICATIONS

ISO 18869

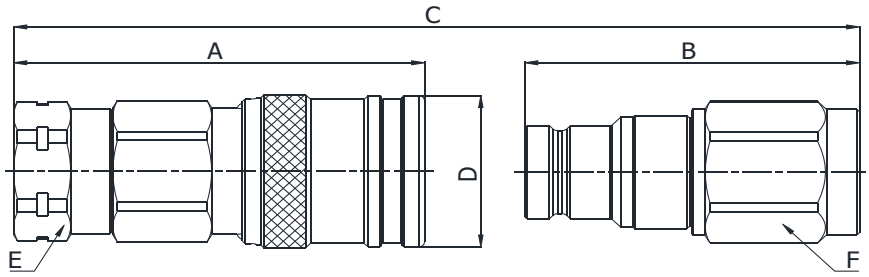
Q04411041A
Q04311041A



BSP TERMINATION ENDS
TO DIN 3852 X TYPE

SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
6.3	1/4”	-04	Q04411041A-04-04	Q04311041A-04-04	1/4"	65.2	52.4	A+B-11,1	ø28	24	22
10	3/8"	-06	Q04411041A-06-06	Q04311041A-06-06	3/8"	78.3	63.8	A+B-15,9	ø32	27	27
10	3/8"	-06	Q04411041A-06-08	Q04311041A-06-08	1/2"	81.3	67.8	A+B-15,9	ø32	27	27
12.5	1/2"	-08	Q04411041A-08-08	Q04311041A-08-08	1/2"	88.5	71.3	A+B-17,1	ø38	34	34
12.5	1/2"	-08	Q04411041A-08-12	Q04311041A-08-12	3/4"	90.5	75.8	A+B-17,1	ø38	34	34
16	5/8"	-10	Q04411041A-10-12	Q04311041A-10-12	3/4"	94.6	76.4	A+B-17,1	ø42	36	34
20	3/4"	-12	Q04411041A-12-12	Q04311041A-12-12	3/4"	108	89.8	A+B-21,7	ø48	41	41
20	3/4"	-12	Q04411041A-12-16	Q04311041A-12-16	1"	111	92.8	A+B-21,7	ø48	41	41
25	1"	-16	Q04411041A-16-16	Q04311041A-16-16	1"	119.4	92.1	A+B-22,9	ø55	50	50
25	1"	-16	Q04411041A-16-20	Q04311041A-16-20	1.1/4"	122.4	97.1	A+B-22,9	ø55	50	50

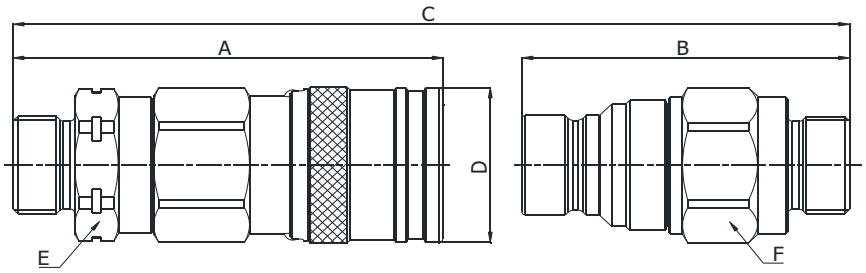
Q04411341A
Q04311341A



NPTF TERMINATION END
TO ANSI B 1.20.3

SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
10	3/8"	-06	Q04411341A-06-06	Q04311341A-06-06	3/8"-NPT	78.3	63.8	A+B-15,9	ø32	27	27
12.5	1/2"	-08	Q04411341A-08-08	Q04311341A-08-08	1/2"-NPT	88.5	71.3	A+B-17,1	ø38	34	34
20	3/4"	-12	Q04411341A-12-12	Q04311341A-12-12	3/4"-NPT	108	89.8	A+B-21,7	ø48	41	41
25	1"	-16	Q04411341A-16-16	Q04311341A-16-16	1"-NPT	119.4	92.1	A+B-22,9	ø55	50	50

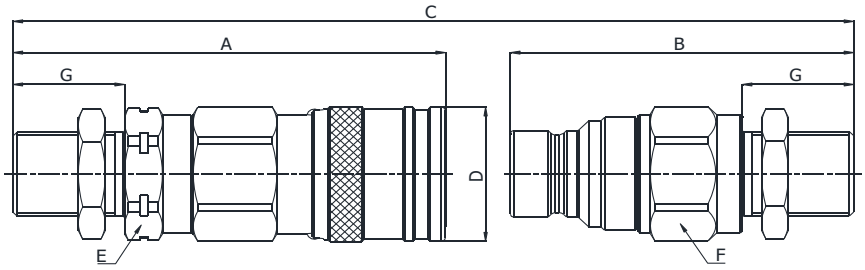
Q04411120A
Q04311120A



METRIC TERMINATION ENDS
TO ISO 8434-1 S SERIES

SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
12.5	1/2"	-08	Q04411120A-08-24	Q04311120A-08-24	M24x1,5	97.5	74.3	A+B-17,1	ø38	34	34

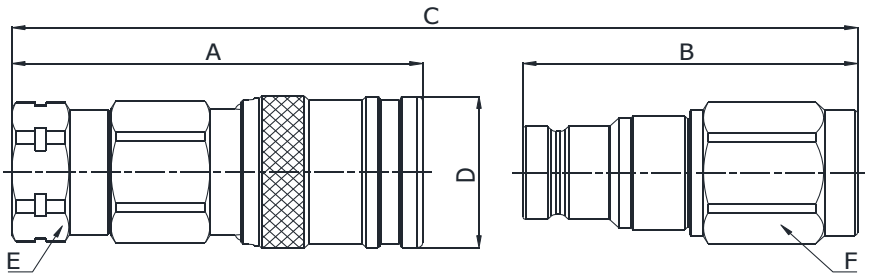
Q04411870B
Q04311870B



METRIC TERMINATION ENDS
TO ISO 8434-1 S SERIES
BULKHEAD

SIZE			PART NUMBER		THREAD	DIMENSIONS mm						
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F	G
12.5	1/2"	-08	Q04411870B-08-24	Q04311870B-08-24	M24x1,5	112.5	89.3	A+B-17,1	ø38	34	34	29

Q04411301A
Q04311301A



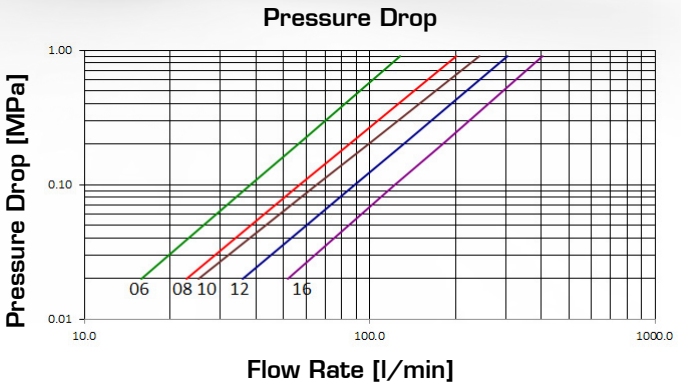
SAE TERMINATION END
TO SAE J1926-1

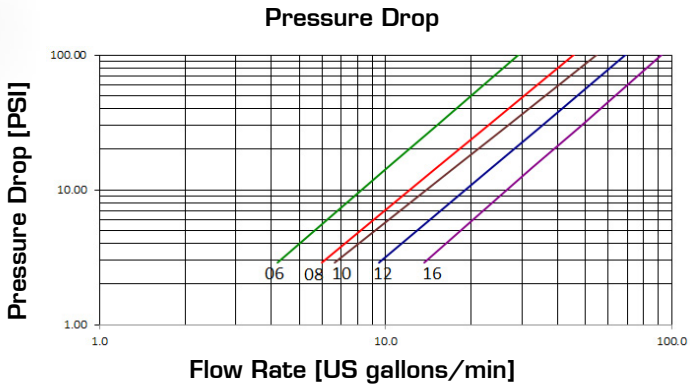
SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
10	3/8”	-06	Q04411301A-06-08	Q04311301A-06-08	3/4”-16UNF	80,8	66,8	A+B-15,9	ø32	27	27
12.5	1/2"	-08	Q04411301A-08-10	Q04311301A-08-10	7/8"-14UNF	90.5	74.8	A+B-17,1	ø38	34	34
12.5	1/2"	-08	Q04411301A-08-12	Q04311301A-08-12	1.1/16"-12UNF	93.5	78.8	A+B-17,1	ø38	34	34
20	3/4”	-12	Q04411301A-12-12	Q04311301A-12-12	1.1/16"-12 UN	111	89.8	A+B-21,7	ø48	41	41
20	3/4”	-12	Q04411301A-12-16	Q04311301A-12-16	1.5/16"-12 UN	111	92.8	A+B-21,7	ø48	41	41

manuli® HYDRAULICS



FLAT FACE MALE CONNECTABLE UNDER PRESSURE





TECHNICAL DATA

SIZE			WORKING PRESSURE CONNECTED (Dynamic)		WORKING PRESSURE DISCONNECTED (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		CONNECTION EFFORT		OIL SPILLAGE Connection/ Disconnection		MINIMUM BURST PRESSURE				CONNECTION/DISCONNECTION UNDER PRESSURE
													Male		M & F		
DN	inch	Dash	MPa	PSI	MPa	PSI	l/min	US GPM	N	lb.	cc.	cubic inch	MPa	PSI	MPa	PSI	
10	⅜	06	35	5075	35	5075	56	14.8	150	33.7	0.007	0.0004	170	24650	140	20300	Connection allowed
12.5	½	08	35	5075	35	5075	85	22.5	180	40.5	0.008	0.0005	170	24650	140	20300	Connection allowed
16	⅝	10	35	5075	35	5075	99	26.2	200	45.0	0.008	0.0005	170	24650	140	20300	Connection allowed
19	¾	12	35	5075	35	5075	131	34.6	200	45.0	0.009	0.0005	140	20300	150	21750	Connection allowed
25	1	16	35	5075	35	5075	170	44.9	220	49.5	0.02	0.0012	140	23200	160	23200	Connection allowed

The rated flow represents the normal operating condition. The maximum recommended flow rate is equal to 1.5 times the rated flow

PRODUCT DESCRIPTION

- Triple valve system that guarantees connection under pressure (female part always with 0MPa) safely
- Low connection effort during connection under pressure
- Working pressure 35MPa
- Interchangeable according to ISO 16028:1997aMD.1:2006 (E)
- Sealing system with flat valve
- Polyurethane seals
- Compact design
- Wide range of termination ends
- E-Coat 1000 plating

MATERIAL

Couplings in steel with some stressed area hardened, carbonitrided valve, springs in C98 steel, seals in polyurethane and NBR, back-up ring PTFE

WORKING TEMPERATURE

-22°F up to +230°F (-30°C up to +110°C)

SAFETY FACTOR

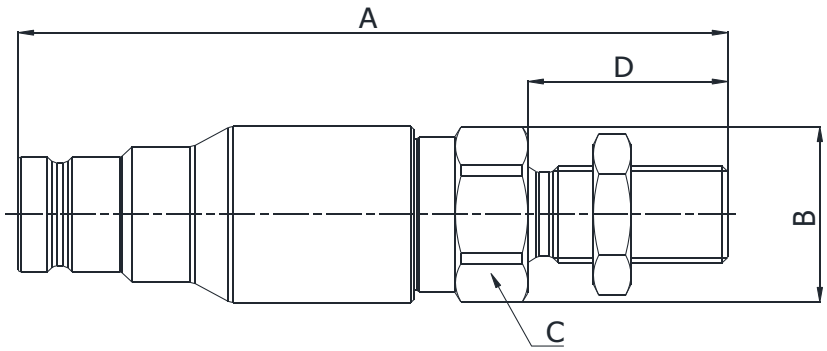
4:1 for dynamic pressures

IMPULSE PRESSURES

1,000,000 cycles (connected and disconnected conditions) at 120% of the rated one (freq. 1Hz)

TEST SPECIFICATIONS

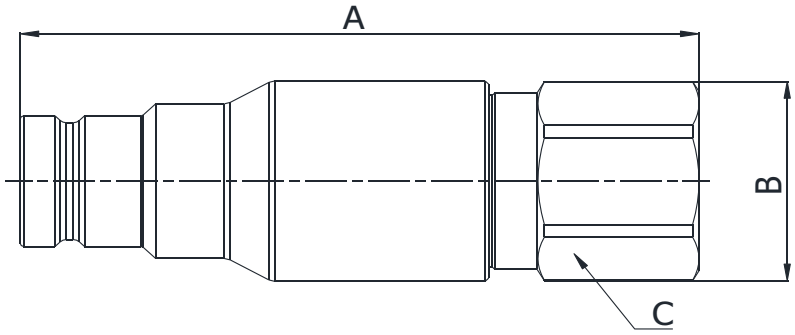
ISO 18869



Q04011040A

BSP TERMINATION ENDS
TO ISO 8434-6
BULKHEAD

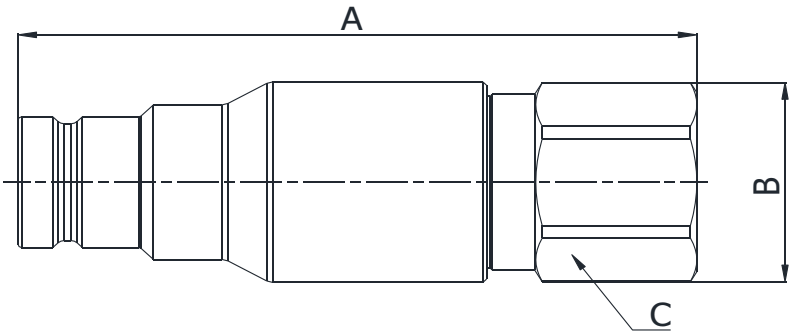
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B	C	D		
10	3/8"	-06	Q04011040A-06-06	3/8"	113.5	ø30	27	32		



Q04011041A

BSP TERMINATION ENDS
TO DIN 3852 TYPE

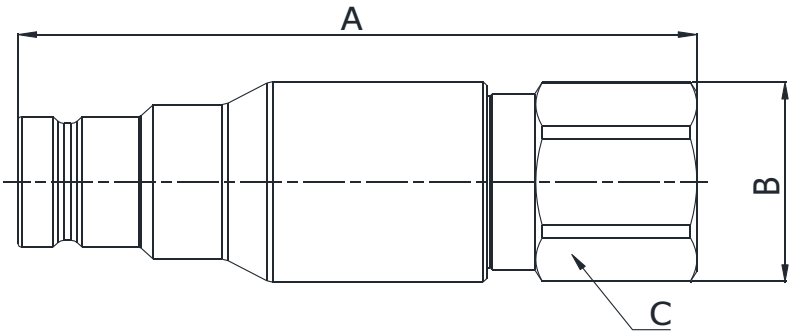
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B	C			
10	3/8"	-06	Q04011041A-06-06	3/8"	91.7	ø30	27			
10	3/8"	-06	Q04011041A-06-08	1/2"	94	ø30	27			
12	1/2"	-08	Q04011041A-08-06	3/8"	99	ø37	34			
12	1/2"	-08	Q04011041A-08-08	1/2"	99	ø37	34			
12	1/2"	-08	Q04011041A-08-12	3/4"	102	ø37	34			
16	5/8"	-10	Q04011041A-10-12	3/4"	114.3	ø40	36			
19	3/4"	-12	Q04011041A-12-12	3/4"	118	ø45	41			
19	3/4"	-12	Q04011041A-12-16	1"	122	ø45	41			
25	1"	-16	Q04011041A-16-16	1"	126.3	ø55	50			
25	1"	-16	Q04011041A-16-20	1.1/4"	130	ø55	50			



Q04011341A

NPTF TERMINATION END
TO ANSI B 1.20.3

SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B	C			
10	3/8"	-06	Q04011341A-06-06	3/8" NPTF	91.7	ø30	27			
10	3/8"	-06	Q04011341A-06-08	1/2" NPTF	94	ø30	27			
12	1/2"	-08	Q04011341A-08-08	1/2" NPTF	98	ø38	34			
12	1/2"	-08	Q04011341A-08-12	3/4" NPTF	100	ø38	34			
16	5/8"	-10	Q04011341A-10-12	3/4" NPTF	114.3	ø40	36			
19	3/4"	-12	Q04011341A-12-12	3/4" NPTF	118	ø45	41			
19	3/4"	-12	Q04011341A-12-16	1" NPTF	122	ø45	41			
25	1"	-16	Q04011341A-16-20	1.1/4" NPTF	130	ø55	50			



Q04011301A

SAE TERMINATION ENDS
TO SAE J1926-1

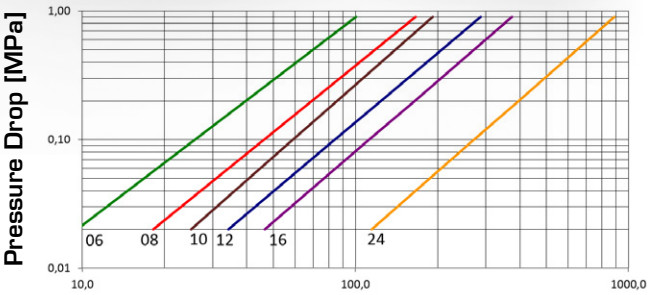
SIZE			PART NUMBER	THREAD	DIMENSIONS mm					
DN	Inch	Dash	Male coupling		A	B	C			
10	3/8"	-06	Q04011301A-06-06	9/16"-18 UNF	91.7	ø30	27			
10	3/8"	-06	Q04011301A-06-08	3/4" 16UNF	94.5	ø30	27			
12	1/2"	-08	Q04011301A-08-10	7/8" -14 UNF	102	ø38	34			
12	1/2"	-08	Q04011301A-08-12	1.1/16"-12UN	105	ø38	34			
19	3/4"	-12	Q04011301A-12-16	1.5/16"-12UN	122.1	ø45	41			
25	1"	-16	Q04011301A-16-16	1.5/16"-12 UN	126.3	ø55	50			

manuli HYDRAULICS

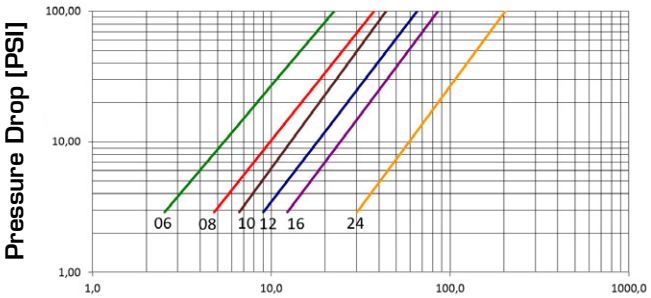
FLAT FACE SCREW TYPE



Pressure Drop



Pressure Drop



TECHNICAL DATA

SIZE			WORKING PRESSURE CONNECTED (Dynamic)		WORKING PRESSURE DISCONNECTED (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		OIL SPILLAGE Connection/ Disconnection		MINIMUM BURST PRESSURE						CONNECTION/ DISCONNECTION UNDER PRESSURE
											Male		Female		M & F		
DN	inch	Dash	MPa	PSI	MPa	PSI	l/min	US GPM	cc.	cubic inch	MPa	PSI	MPa	PSI	MPa	PSI	
10	⅜	06	42	6090	35	5075	40	10.6	0.007	0.0004	190	27550	145	21025	175	25375	Allowed
12.5	½	08	42	6090	35	5075	69	18.2	0.008	0.0005	180	26100	145	21025	170	24650	Allowed
16	⅝	10	42	6090	35	5075	86	22.7	0.008	0.0005	200	29000	145	21025	185	26825	Allowed
19	¾	12	42	6090	35	5075	124	32.8	0.009	0.0005	145	21025	145	21025	175	25375	Allowed
25	1	16	38	5510	35	5075	165	43.6	0.02	0.0012	145	21025	145	21025	155	22475	Allowed
38	1½	24	32	4640	32	4640	396	104.6	0.05	0.0031	130	18850	130	18850	130	18850	Allowed

The rated flow represents the normal operating condition. The maximum recommended flow rate is equal to 1.5 times the rated flow

PRODUCT DESCRIPTION

- Screw coupling with quick connection system
- Working pressure 35MPa
- Triple valve system that guarantees connection under pressure safely
- Interchangeable according to Manuli Q.Safe specifications
- Sealing system with flat valve
- Polyurethane seals
- Compact design
- Wide range of termination ends
- E-Coat 1000 plating

MATERIAL

Couplings in steel with some stressed area hardened, carbonitrided valve, springs in C98 steel, seals in polyurethane and NBR, back-up ring PTFE

WORKING TEMPERATURE

-22°F up to +230°F (-30°C up to +110°C)

SAFETY FACTOR

4:1 for dynamic pressures

IMPULSE PRESSURES

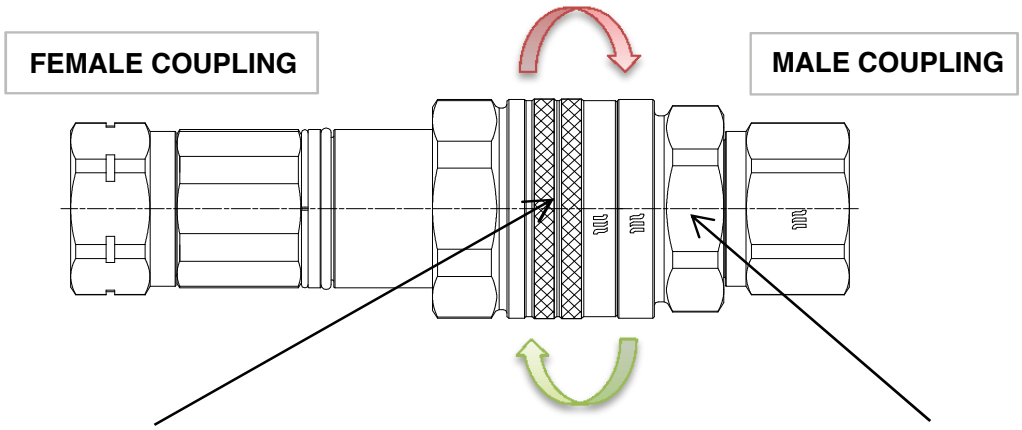
1,000,000 cycles at 120% of rated one (freq. 1Hz) in connected and disconnected conditions

TEST SPECIFICATIONS

ISO 18869

ASSEMBLY INSTRUCTIONS

RECOMMENDED TIGHTENING TORQUES

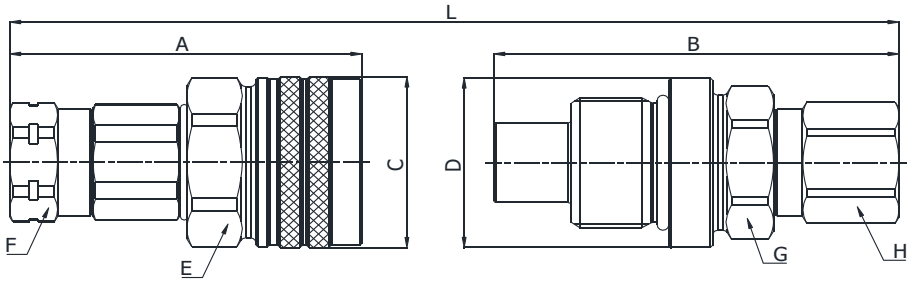


Turn the sleeve on the female applying the tightening torque through the hexagon

Hold the hexagon on the male body with a wrench

SIZE			TIGHTENING TORQUE
DN	Inch	Dash	Nm
10	⅜	06	60
12.5	½	08	80
16	⅝	10	100
19	¾	12	120
25	1	16	200
38	1½	24	400

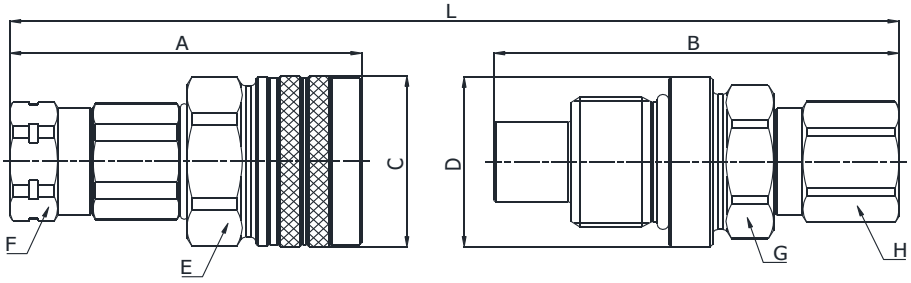
Q06711041A
Q06611041A



BSP TERMINATION ENDS
TO DIN 3852 X TYPE

SIZE			PART NUMBER		THREAD	DIMENSIONS mm								
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F	G	H	L
10	3/8"	-06	Q06711041A-06-06	Q06611041A-06-06	3/8"	79.7	Ø42,3	91.7	Ø42	38	27	34	27	A+B-17,1
10	3/8"	-06	Q06711041A-06-08	Q06611041A-06-08	1/2"	82.7	Ø42,3	94.5	Ø42	38	27	34	27	A+B-17,1
12.5	1/2"	-08	Q06711041A-08-08	Q06611041A-08-08	1/2"	89.9	Ø50,3	99.0	Ø50	46	34	41	34	A+B-18,4
12.5	1/2"	-08	Q06711041A-08-12	Q06611041A-08-12	3/4"	91.9	Ø50,3	102	Ø50	46	34	41	34	A+B-18,4
16	5/8"	-10	Q06711041A-10-12	Q06611041A-10-12	3/4"	96.5	114.3	Ø55,3	Ø55	50	36	46	36	A+B-18,9
19	3/4"	-12	Q06711041A-12-12	Q06611041A-12-12	3/4"	109,9	118.7	Ø60,3	Ø60	55	41	50	41	A+B-23,5
19	3/4"	-12	Q06711041A-12-16	Q06611041A-12-16	1"	112.9	122.1	Ø60,3	Ø60	55	41	50	41	A+B-23,5
25	1"	-16	Q06711041A-16-16	Q06611041A-16-16	1"	121.3	126.3	Ø70,3	Ø70	65	50	60	50	A+B-24,5
25	1"	-16	Q06711041A-16-20	Q06611041A-16-20	1.1/4"	124.3	130	Ø70,3	Ø70	65	50	60	50	A+B-24,5
38	1½"	-24	Q06711041A-24-24	Q06611041A-24-24	1.½"	167,6	166	Ø97,3	Ø97	90	75	85	75	A+B-31

Q06711341A
Q06611341A



NPTF TERMINATION END
TO ANSI B 1.20.3

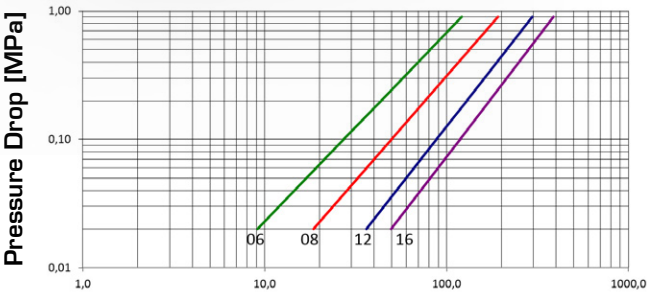
SIZE			PART NUMBER		THREAD	DIMENSIONS mm								
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F	G	H	L
10	3/8"	-06	Q06711341A-06-06	Q06611341A-06-06	3/8" NPTF	79.7	Ø42,3	91.7	Ø42	38	27	34	27	A+B-17,1
10	3/8"	-06	Q06711341A-06-08	Q06611341A-06-08	1/2" NPTF	82.7	Ø42,3	94.5	Ø42	38	27	34	27	A+B-17,1
12.5	1/2"	-08	Q06711341A-08-08	Q06611341A-08-08	1/2" NPTF	89.9	Ø50,3	99.0	Ø50	46	34	41	34	A+B-18,4
12.5	1/2"	-08	Q06711341A-08-12	Q06611341A-08-12	3/4" NPTF	91.9	Ø50,3	102	Ø50	46	34	41	34	A+B-18,4
16	5/8"	-10	Q06711341A-10-12	Q06611341A-10-12	3/4" NPTF	96.5	Ø55,3	114.3	Ø55	50	36	46	36	A+B-18,9
19	3/4"	-12	Q06711341A-12-12	Q06611341A-12-12	3/4" NPTF	109.9	Ø60,3	118.7	Ø60	55	41	50	41	A+B-23,5
19	3/4"	-12	Q06711341A-12-16	Q06611341A-12-16	1" NPTF	112.9	Ø60,3	122.1	Ø60	55	41	50	41	A+B-23,5
25	1"	-16	Q06711341A-16-16	Q06611341A-16-16	1" NPTF	121.3	Ø70,3	126.3	Ø70	65	50	60	50	A+B-24,5
25	1"	-16	Q06711341A-16-20	Q06611341A-16-20	1-1/4" NPTF	124.3	Ø70,3	130	Ø70	65	50	60	50	A+B-24,5
38	1-1/2"	-24	Q06711341A-24-24	Q06611341A-24-24	1-1/2" NPTF	167.6	Ø97,3	166	Ø97	90	75	85	75	A+B-31

manuli HYDRAULICS

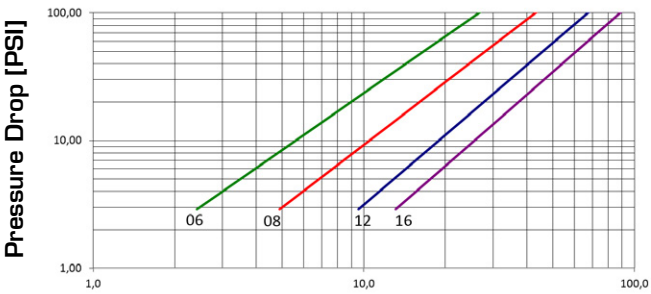
FLAT FACE FOR MULTICONNECTORS



Pressure Drop



Pressure Drop



TECHNICAL DATA

SIZE			WORKING PRESSURE CONNECTED (Dynamic)		WORKING PRESSURE DISCONNECTED (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		OIL SPILLAGE Connection/ Disconnection		MINIMUM BURST PRESSURE						CONNECTION/ DISCONNECTION UNDER PRESSURE
											Male		Female		M & F		
DN	inch	Dash	MPa	PSI	MPa	PSI	l/min	US GPM	cc.	cubic inch	MPa	PSI	MPa	PSI	MPa	PSI	
10	3/8"	06	35	5075	35	5075	44	11.6	0.007	0.0004	170	24650	140	20300	180	26100	Allowed
12.5	1/2"	08	35	5075	35	5075	76	20.1	0.008	0.0005	170	24650	140	20300	180	26100	Allowed
19	3/4"	12	35	5075	35	5075	129	34.1	0.009	0.0005	140	20300	140	20300	160	23200	Allowed
25	1"	16	35	5075	35	5075	172	45.4	0.02	0.0012	160	23200	150	21750	160	23200	Allowed

The rated flow represents the normal operating condition. The maximum recommended flow rate is equal to 1.5 times the rated flow

PRODUCT DESCRIPTION

- Flat face cartridges for multiconnections.
- Working pressure 35 MPa in connected and disconnected conditions.
- Flat mating surfaces easily wiped clean to prevent contamination and spillage during connection/disconnection.
- Shut-off by flat valve
- Polyurethane seals
- 1,000,000 cycles at 120% of rated one (freq. 1Hz – connected and disconnected conditions)
- E-Coat 1000 plating

MATERIAL

Female & male couplings in high grade carbon steel.
Male vs. female sealing system in Polyurethane compound; other seals in NBR, back-up ring in PTFE

WORKING TEMPERATURE

-22ºF up to +230ºF (-30ºC up to +110ºC)

SAFETY FACTOR

4:1 for dynamic pressures

IMPULSE PRESSURES

1,000,000 cycles at 120% of rated one (freq. 1Hz) in connected and disconnected conditions

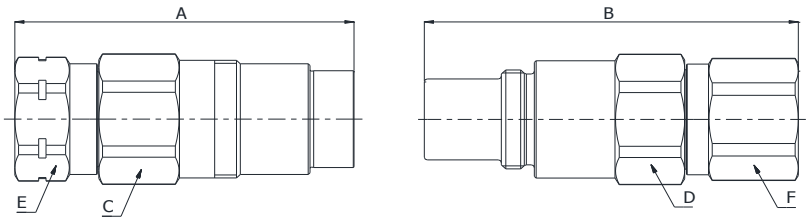
TEST SPECIFICATIONS

ISO 18869

NOTE

*This product is intended as a replacement part for the couplings used on the **MQS-MC** type Multiconnector product range.*

*Instructions on removal and fitting of these components can be found in the **Appendices**.*



Q06811041A
Q06911041A

BSP TERMINATION ENDS
TO DIN 3852 X TYPE

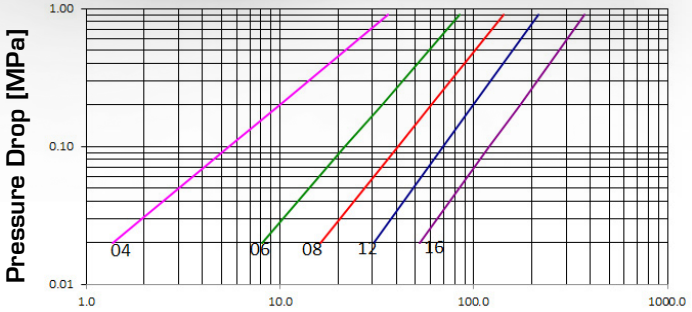
SIZE			PART NUMBER		THREAD	DIMENSIONS mm						
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F	
10	3/8"	-06	Q06911041A-06-06	Q06811041A-06-06	3/8"	82.3	93.7	30	30	27	27	
10	3/8"	-06	Q06911041A-06-08	Q06811041A-06-08	1/2"	85.3	96.5	30	30	27	27	
12.5	1/2"	-08	Q06911041A-08-08	Q06811041A-08-08	1/2"	92.5	102	36	36	34	34	
12.5	1/2"	-08	Q06911041A-08-12	Q06811041A-08-12	3/4"	94.5	105	36	36	34	34	
20	3/4"	-12	Q06911041A-12-12	Q06811041A-12-12	3/4"	108	118.7	41	42	41	41	
25	1"	-16	Q06911041A-16-16	Q06811041A-16-16	1"	119.4	126.3	50	50	50	50	

manuli HYDRAULICS

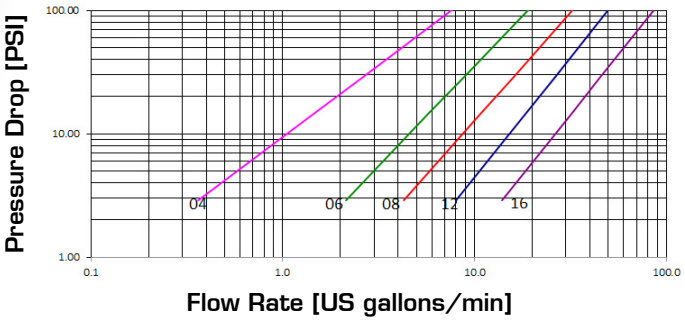
SCREW TYPE



Pressure Drop



Pressure Drop



TECHNICAL DATA

SIZE			WORKING PRESSURE (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		OIL SPILLAGE Connection/ Disconnection		MINIMUM BURST PRESSURE						CONNECTION/ DISCONNECTION UNDER PRESSURE
									Male		Female		M & F		
DN	inch	Dash	MPa	PSI	l/min	US GPM	cc.	cubic inch	MPa	PSI	MPa	PSI	MPa	PSI	
6.3	¼	04	35	5075	10	2.6	0.8	0.049	145	21025	190	27500	190	27550	Allowed max. 12 MPa
10	⅜	06	35	5075	34	9.0	1.5	0.092	150	21750	160	23200	150	21750	Allowed max. 10 MPa
12.5	½	08	30	4350	61	16.1	2	0.122	130	18850	140	20300	140	20300	Allowed max. 10 MPa
20	¾	12	30	4350	100	26.4	5	0.305	130	18850	130	18850	140	20300	Allowed max. 10 MPa
25	1	16	25	3625	173	45.7	9	0.549	110	15950	110	15950	110	15950	Allowed max. 10 MPa

The rated flow represents the normal operating condition. The maximum recommended flow rate is equal to 1.5 times the rated flow

PRODUCT DESCRIPTION

- Screw-type couplings specially designed for heavy duty, high pressure, pressure impulse applications such as hammers, attachments, rock crushers, etc.
- Connection and disconnection is made by screwing the sleeve, also possible with residual pressure in the line
- Connection secured on the thread between the sleeve and the male coupling
- Shut-off by poppet valve
- Hexagon around the male insert to be tightened up or released for maintenance
- Interchangeable with similar products available on the market
- Up to size DN 20 ISO 14541 compliant

MATERIAL

Female coupling in steel, male couplings high standard carbon steel. Carbonitrided valve, springs in C98 steel, seals in NBR (other materials available on request) and back-up ring in PTFE

WORKING TEMPERATURE

-22°F up to +230°F (-30°C up to +110°C)

SAFETY FACTOR

4:1 for dynamic pressures

IMPULSE PRESSURES

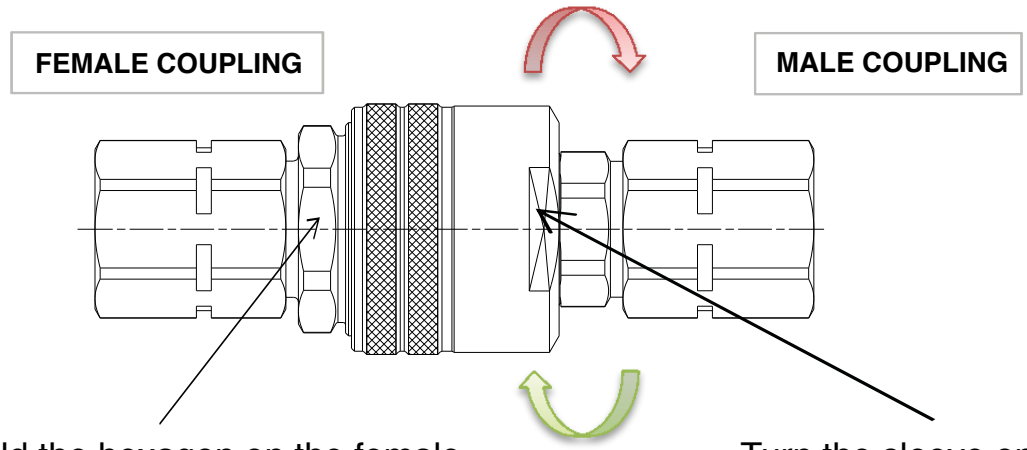
200,000 cycles at 133% of the rated one (freq. 1Hz) disconnected; 500,000 connected

TEST SPECIFICATIONS

ISO 18869

ASSEMBLY INSTRUCTIONS

RECOMMENDED TIGHTENING TORQUES

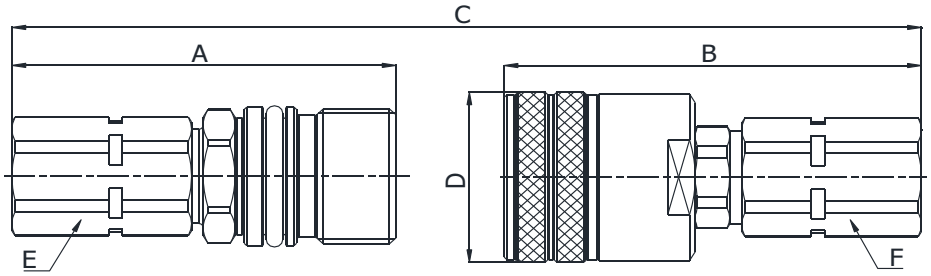


Hold the hexagon on the female body with a wrench

Turn the sleeve on the male applying the tightening torque through the wrench flats

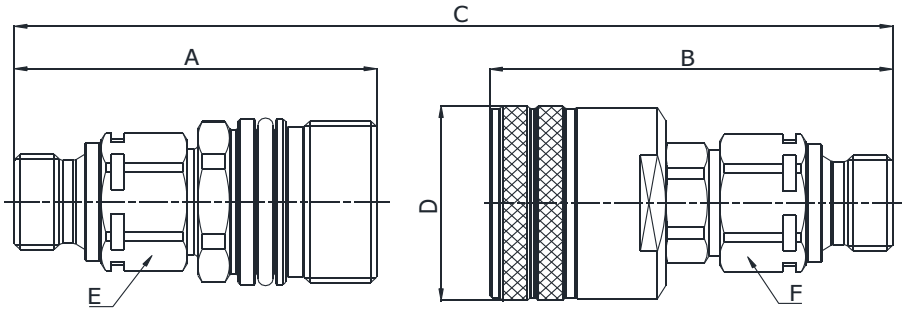
SIZE			TIGHTENING TORQUE
DN	Inch	Dash	Nm
6.3	1/4"	-04	25
10	3/8"	-06	40
12.5	1/2"	-08	70
20	**3/4"**	-12	100
25	1"	-16	150

Q05211041A
Q05111041A



BSP TERMINATION ENDS
TO DIN 3852 X TYPE

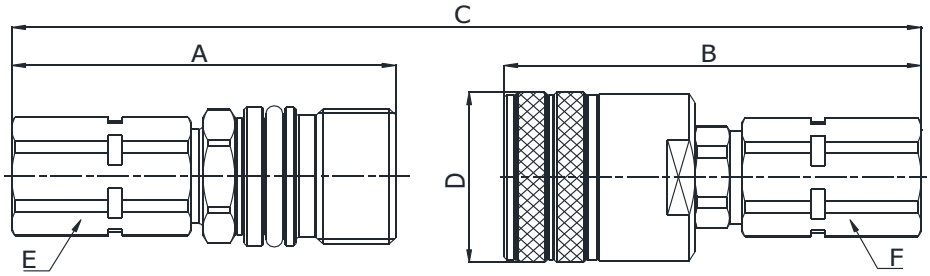
SIZE			PART NUMBER		THREAD	DIMENSIONS mm							
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F		
6.3	1/4"	-04	Q05211041A-04-04	Q05111041A-04-04	1/4"	61.5	65.5	A+B-24,5	ø30	19	19		
10	3/8"	-06	Q05211041A-06-04	Q05111041A-06-04	1/4"	68	74	A+B-26,5	ø34	22	22		
10	3/8"	-06	Q05211041A-06-06	Q05111041A-06-06	3/8"	69.5	75.5	A+B-26,5	ø34	22	22		
12.5	1/2"	-08	Q05211041A-08-06	Q05111041A-08-06	3/8"	66.5	74.5	A+B-26,5	ø42	27	27		
12.5	1/2"	-08	Q05211041A-08-08	Q05111041A-08-08	1/2"	69.5	77.5	A+B-26,5	ø42	27	27		
20	3/4"	-12	Q05211041A-12-08	Q05111041A-12-08	1/2"	80.8	89.3	A+B-31	ø49	34	34		
20	3/4"	-12	Q05211041A-12-12	Q05111041A-12-12	3/4"	82.8	91.3	A+B-31	ø49	34	34		
25	1"	-16	Q05211041A-16-08	Q05111041A-16-08	1/2"	92.3	99.3	A+B-34,5	ø56	41	41		
25	1"	-16	Q05211041A-16-12	Q05111041A-16-12	3/4"	92.3	99.3	A+B-34,5	ø56	41	41		
25	1"	-16	Q05211041A-16-16	Q05111041A-16-16	1"	95.3	102.3	A+B-34,5	ø56	41	41		



Q05211050A
Q05111050A

BSP TERMINATION ENDS
TO ISO 8434-6

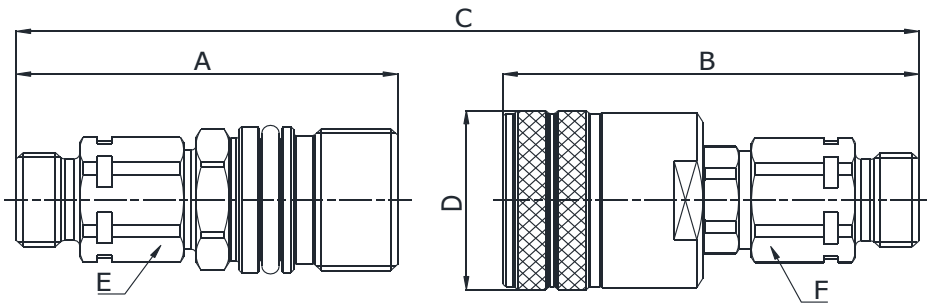
SIZE			PART NUMBER		THREAD	DIMENSIONS mm							
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F		
12.5	1/2"	-08	Q05211050A-08-06	Q05111050A-08-06	3/8"	69.2	77.2	A+B-26,5	ø42	27	27		
12.5	1/2"	-08	Q05211050A-08-08	Q05111050A-08-08	1/2"	71.7	79.7	A+B-26,5	ø42	27	27		



Q05211141A
Q05111141A

METRIC TERMINATION ENDS
TO ISO 3852-1 X TYPE

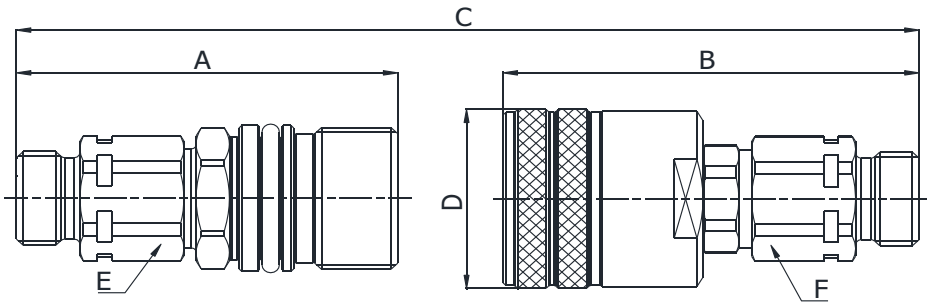
SIZE			PART NUMBER		THREAD	DIMENSIONS mm							
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F		
10	3/8"	-06	Q05211141A-06-16	Q05111141A-06-16	M16x1,5	69.5	75.5	A+B-26,5	ø34	22	22		
12.5	1/2"	-08	Q05211141A-08-18	Q05111141A-08-18	M18x1,5	66.5	74.5	A+B-26,5	ø42	27	27		
12.5	1/2"	-08	Q05211141A-08-22	Q05111141A-08-22	M22x1,5	68.5	76.5	A+B-26,5	ø42	27	27		



Q05211110A
Q05111110A

METRIC TERMINATION END
TO ISO 8434-1
L SERIES

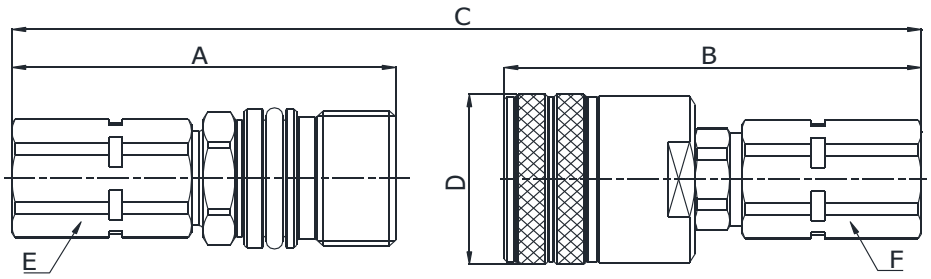
SIZE			PART NUMBER		THREAD	DIMENSIONS mm							
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F		
6.3	1/4"	-04	Q05211110A-04-12	Q05111110A-04-12	M12x1,5	59.5	63.5	A+B-24,5	ø30	19	19		
6.3	1/4"	-04	Q05211110A-04-14	Q05111110A-04-14	M14x1,5	59.5	63.5	A+B-24,5	ø30	19	19		
10	3/8"	-06	Q05211110A-06-12	Q05211110A-06-12	M12x1,5	66	72	A+B-26,5	ø34	22	22		
10	3/8"	-06	Q05211110A-06-14	Q05211110A-06-14	M14x1,5	66	72	A+B-26,5	ø34	22	22		
10	3/8"	-06	Q05211110A-06-16	Q05211110A-06-16	M16x1,5	66	72	A+B-26,5	ø34	22	22		
10	3/8"	-06	Q05211110A-06-18	Q05211110A-06-18	M18x1,5	66	72	A+B-26,5	ø34	22	22		
12.5	1/2"	-08	Q05211110A-08-14	Q05111110A-08-14	M14x1,5	65.5	73.5	A+B-26,5	ø42	27	27		
12.5	1/2"	-08	Q05211110A-08-16	Q05111110A-08-16	M16x1,5	66.5	74.5	A+B-26,5	ø42	27	27		
12.5	1/2"	-08	Q05211110A-08-18	Q05111110A-08-18	M18x1,5	65.5	73.5	A+B-26,5	ø42	27	27		
12.5	1/2"	-08	Q05211110A-08-22	Q05111110A-08-22	M22x1,5	66.5	74.5	A+B-26,5	ø42	27	27		
12.5	1/2"	-08	Q05211110A-08-26	Q05111110A-08-26	M26x1,5	66.5	74.5	A+B-26,5	ø42	27	27		
20	3/4"	-12	Q05211110A-12-18	Q05111110A-12-18	M18x1,5	80,8	89.3	A+B-31	ø49	34	34		
20	3/4"	-12	Q05211110A-12-22	Q05111110A-12-22	M22x1,5	80.8	89,3	A+B-31	ø49	34	34		
20	3/4"	-12	Q05211110A-12-26	Q05111110A-12-26	M26x1,5	80.8	89,3	A+B-31	ø49	34	34		
20	3/4"	-12	Q05211110A-12-30	Q05111110A-12-30	M30x2	82,8	91,3	A+B-31	ø49	34	34		
25	1"	-16	Q05211110A-16-26	Q05111110A-16-26	M26x1,5	90.3	97.3	A+B-34,5	ø56	41	41		
25	1"	-16	Q05211110A-16-30	Q05111110A-16-30	M30x2	92.3	99.3	A+B-34,5	ø56	41	41		
25	1"	-16	Q05211110A-16-36	Q05111110A-16-36	M36x2	92.3	99.3	A+B-34,5	ø56	41	41		



Q05211120A
Q05111120A

METRIC TERMINATION END
TO ISO 8434-1
S SERIES

SIZE			PART NUMBER		THREAD	DIMENSIONS mm							
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F		
6.3	1/4"	-04	Q05211120A-04-16	Q05111120A-04-16	M16x1,5	61.5	65.5	A+B-24,5	ø30	19	19		
10	3/8"	-06	Q05211120A-06-16	Q05111120A-06-16	M16x1,5	67	73	A+B-26,5	ø34	22	22		
10	3/8"	-06	Q05211120A-06-18	Q05111120A-06-18	M18x1,5	67	73	A+B-26,5	ø34	22	22		
12.5	1/2"	-08	Q05211120A-08-18	Q05111120A-08-18	M18x1,5	66.5	74.5	A+B-26,5	ø42	27	27		
12.5	1/2"	-08	Q05211120A-08-20	Q05111120A-08-20	M20x1,5	66.5	74.5	A+B-26,5	ø42	27	27		
12.5	1/2"	-08	Q05211120A-08-24	Q05111120A-08-24	M24x1,5	68.5	76.5	A+B-26,5	ø42	27	27		
20	3/4"	-12	Q05211120A-12-20	Q05111120A-12-20	M20x1,5	80.8	89.3	A+B-31	ø49	34	34		
20	3/4"	-12	Q05211120A-12-24	Q05111120A-12-24	M24x1,5	82.8	91.3	A+B-31	ø49	34	34		
20	3/4"	-12	Q05211120A-12-30	Q05111120A-12-30	M30x2	84.8	93.3	A+B-31	ø49	34	34		
25	1"	-16	Q05211120A-16-30	Q05111120A-16-30	M30x2	94,3	101.3	A+B-34,5	ø56	41	41		
25	1"	-16	Q05211120A-16-36	Q05111120A-16-36	M36x2	96,3	103.3	A+B-34,5	ø56	41	41		
25	1"	-16	Q05211120A-16-42	Q05111120A-16-42	M42x2	98,3	105.3	A+B-34,5	ø56	41	41		

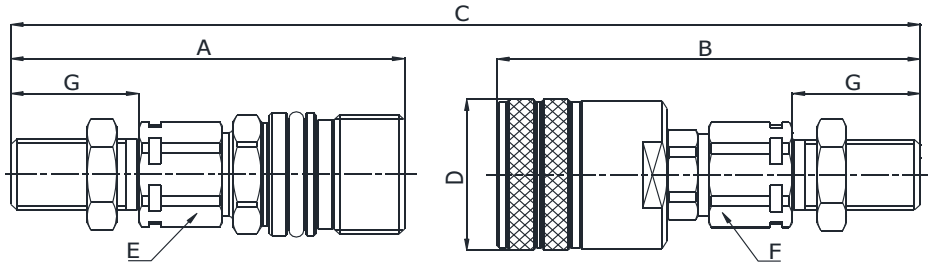


Q05211191A
Q05111191A

METRIC TERMINATION ENDS
TO ISO 6149-1

SIZE			PART NUMBER		THREAD	DIMENSIONS mm							
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F		
12.5	1/2"	-08	Q05211191A-08-16	Q05111191A-08-16	M16x1,5	67	75	A+B-26,5	ø42	27	27		
12.5	1/2"	-08	Q05211191A-08-18	Q05111191A-08-18	M18x1,5	68.5	76.5	A+B-26,5	ø42	27	27		

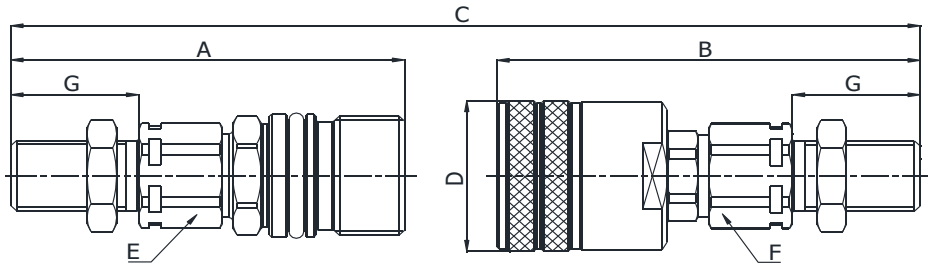
Q05211770B
Q05111770B



METRIC TERMINATION END
TO ISO 8434-1
BULKHEAD L SERIES

SIZE			PART NUMBER		THREAD	DIMENSIONS mm						
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F	G
6.3	1/4"	-04	Q05211770B-04-12	Q05111770B-04-12	M12x1,5	74.5	78.5	A+B-24,5	ø30	19	19	25
6.3	1/4"	-04	Q05211770B-04-14	Q05111770B-04-14	M14x1,5	74.5	78.5	A+B-24,5	ø30	19	19	25
10	3/8"	-06	Q05211770B-06-12	Q05111770B-06-12	M12x1,5	81	87	A+B-26,5	ø34	22	22	25
10	3/8"	-06	Q05211770B-06-14	Q05111770B-06-14	M14x1,5	80	86	A+B-26,5	ø34	22	22	25
10	3/8"	-06	Q05211770B-06-16	Q05111770B-06-16	M16x1,5	80	86	A+B-26,5	ø34	22	22	26
10	3/8"	-06	Q05211770B-06-18	Q05111770B-06-18	M18x1,5	80	86	A+B-26,5	ø34	22	22	26
12.5	1/2"	-08	Q05211770B-08-14	Q05111770B-08-14	M14x1,5	80.5	88.5	A+B-26,5	ø42	27	27	25
12.5	1/2"	-08	Q05211770B-08-16	Q05111770B-08-16	M16x1,5	80.5	88.5	A+B-26,5	ø42	27	27	26
12.5	1/2"	-08	Q05211770B-08-18	Q05111770B-08-18	M18x1,5	80.5	88.5	A+B-26,5	ø42	27	27	26
12.5	1/2"	-08	Q05211770B-08-22	Q05111770B-08-22	M22x1,5	81.5	89.5	A+B-26,5	ø42	27	27	27
12.5	1/2"	-08	Q05211770B-08-26	Q05111770B-08-26	M26x1,5	82.5	90.5	A+B-26,5	ø42	30	30	29
20	3/4"	-12	Q05211770B-12-18	Q05111770B-12-18	M18x1,5	94.8	103.3	A+B-31	ø49	34	34	26
20	3/4"	-12	Q05211770B-12-22	Q05111770B-12-22	M22x1,5	95.8	104.3	A+B-31	ø49	34	34	27
20	3/4"	-12	Q05211770B-12-26	Q05111770B-12-26	M26x1,5	96.8	105.3	A+B-31	ø49	34	34	29
20	3/4"	-12	Q05211770B-12-30	Q05111770B-12-30	M30x2	100.8	109.3	A+B-31	ø49	34	34	32
25	1"	-16	Q05211770B-16-26	Q05111770B-16-26	M26x1,5	106.3	113.3	A+B-34,5	ø56	41	41	29
25	1"	-16	Q05211770B-16-30	Q05111770B-16-30	M30x2	110.3	117.3	A+B-34,5	ø56	41	41	32
25	1"	-16	Q05211770B-16-36	Q05111770B-16-36	M36x2	110.3	117.3	A+B-34,5	ø56	41	41	32

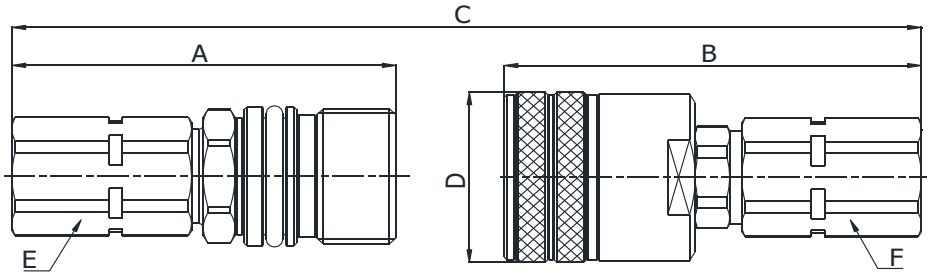
Q05211870B
Q05111870B



METRIC TERMINATION END
TO ISO 8434-1
BULKHEAD S SERIES

SIZE			PART NUMBER		THREAD	DIMENSIONS mm						
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F	G
6.3	1/4"	-04	Q05211870B-04-14	Q05111870B-04-14	M14x1,5	75.5	79.5	A+B-24.5	ø30	19	19	27
6.3	1/4"	-04	Q05211870B-04-16	Q05111870B-04-16	M16x1,5	76.5	77.5	A+B-24.5	ø30	19	19	27
10	3/8"	-06	Q05211870B-06-16	Q05111870B-06-16	M16x1,5	81	87	A+B-26,5	ø34	22	22	27
10	3/8"	-06	Q05211870B-06-18	Q05111870B-06-18	M18x1,5	81	87	A+B-26,5	ø34	22	22	27
12.5	1/2"	-08	Q05211870B-08-18	Q05111870B-08-18	M18x1,5	81.5	89.5	A+B-26,5	ø42	27	27	27
12.5	1/2"	-08	Q05211870B-08-20	Q05111870B-08-20	M20x1,5	81.5	89.5	A+B-26,5	ø42	27	27	27
12.5	1/2"	-08	Q05211870B-08-24	Q05111870B-08-24	M24x1,5	83.5	91.5	A+B-26,5	ø42	27	27	29
20	3/4"	-12	Q05211870B-12-24	Q05111870B-12-24	M24x1,5	97.8	106.3	A+B-31	ø49	34	34	29
20	3/4"	-12	Q05211870B-12-30	Q05111870B-12-30	M30x2	102.8	111.3	A+B-31	ø49	34	34	34
25	1"	-16	Q05211870B-16-30	Q05111870B-16-30	M30x2	112.3	119.3	A+B-34,5	ø56	41	41	34
25	1"	-16	Q05211870B-16-36	Q05111870B-16-36	M36x2	114.3	121.3	A+B-34,5	ø56	41	41	36
25	1"	-16	Q05211870B-16-42	Q05111870B-16-42	M42x2	116.3	123.3	A+B-34,5	ø56	41	41	40

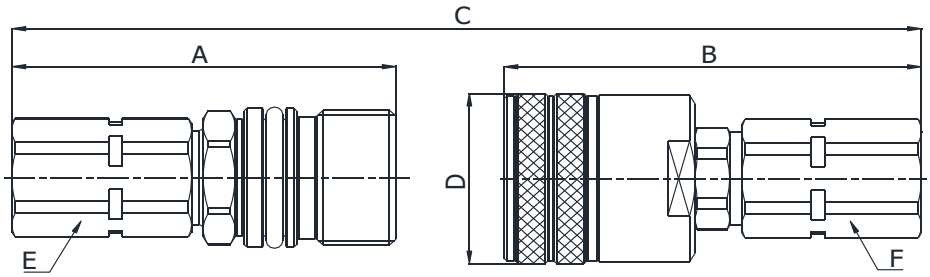
Q05211341A
Q05111341A



NPTF TERMINATION END
TO ANSI B 1.20.3

SIZE			PART NUMBER		THREAD	DIMENSIONS mm							
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F		
6.3	1/4"	-04	Q05211341A-04-04	Q05111341A-04-04	1/4" NPTF	61.5	65,5	A+B-24,5	ø30	19	19		
10	3/8"	-06	Q05211341A-06-06	Q05111341A-06-06	3/8" NPTF	69.5	75,5	A+B-26,5	ø34	22	22		
12.5	1/2"	-08	Q05211341A-08-08	Q05111341A-08-08	1/2" NPTF	69.5	77.5	A+B-26,5	ø42	27	27		
20	3/4"	-12	Q05211341A-12-12	Q05111341A-12-12	3/4" NPTF	82,8	91.3	A+B-31	ø49	34	34		
25	1"	-16	Q05211341A-16-16	Q05111341A-16-16	1" NPTF	95.3	102.3	A+B-34,5	ø56	41	41		

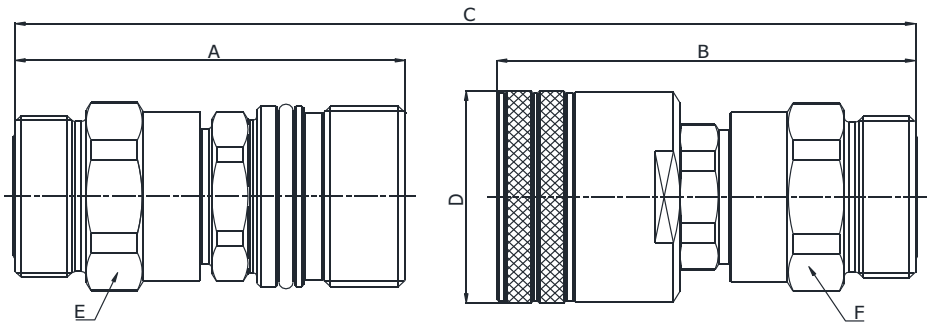
Q05211301A
Q05111301A



SAE TERMINATION END
TO SAE J1926-1

SIZE			PART NUMBER		THREAD	DIMENSIONS mm							
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F		
10	3/8"	-06	Q05211301A-06-06	Q05111301A-06-06	9/16"-18UNF	69.5	75.5	A+B-26,5	ø34	22	22		
12.5	1/2"	-08	Q05211301A-08-08	Q05111301A-08-08	3/4"-16 UNF	69	77	A+B-26,5	ø42	27	27		
12.5	1/2"	-08	Q05211301A-08-10	Q05111301A-08-10	7/8"-14 UNF	71.5	79.5	A+B-26,5	ø42	27	27		

Q05211240A
Q05111240A



ORFS TERMINATION ENDS
TO ISO 8434-3

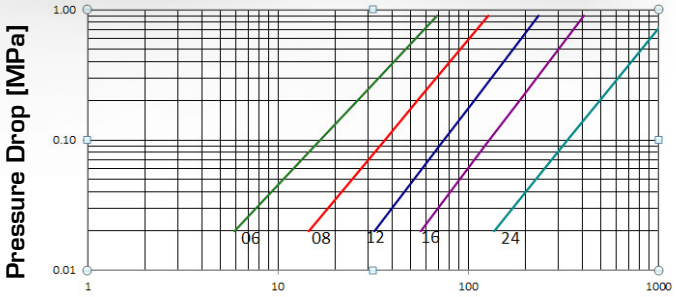
SIZE			PART NUMBER		THREAD	DIMENSIONS mm							
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F		
25	1"	-16	Q05211240A-16-16	Q05111240A-16-16	1.7/16"-12 UN	98.3	102.8	A+B-34,5	ø56	46	46		
25	1"	-16	Q05211240A-16-20	Q05111240A-16-20	1.11/16"-12UN	95.8	102.8	A+B-34,5	ø56	46	46		

manuli® HYDRAULICS

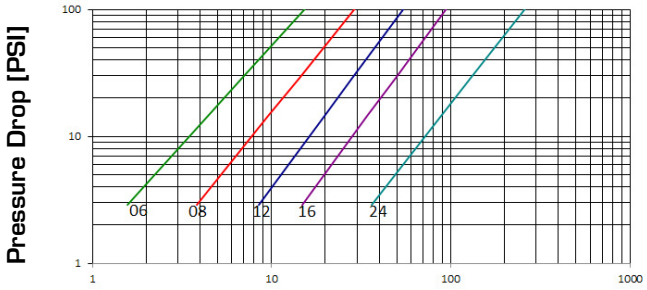
SCREW TYPE HEAVY DUTY



Pressure Drop



Pressure Drop



TECHNICAL DATA

SIZE			WORKING PRESSURE (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		OIL SPILLAGE Connection/ Disconnection		MINIMUM BURST PRESSURE						CONNECTION/ DISCONNECTION UNDER PRESSURE
									Male		Female		M & F		
DN	inch	Dash	MPa	PSI	l/min	US GPM	cc.	cubic inch	MPa	PSI	MPa	PSI	MPa	PSI	
10	⅜	06	35	5075	26	6.9	1.5	0.092	150	21750	160	23200	180	26100	Allowed
12.5	½	08	30	4350	54	14.3	2	0.122	130	18850	140	20300	140	20300	Allowed
20	¾	12	30	4350	107	28.3	5	0.305	130	17750	130	18850	140	20300	Allowed
25	1	16	25	3625	186	49.1	9	0.549	110	15950	110	15950	110	15950	Allowed
38	1½	24	30	4350	492	130.0	25	1.526	130	18850	125	18125	130	18850	Allowed

The rated flow represents the normal operating condition. The maximum recommended flow rate is equal to 1.5 times the rated flow

PRODUCT DESCRIPTION

- Screw-type couplings specially designed for heavy duty applications such as hammers, attachments, rock crushers, etc.
- Thanks to strengthened internal components this series is highly resistant against backflow, flow impulses and peaks, pressure impulses, vibration and hose bending
- Connection and disconnection is made by screwing the sleeve, also possible with rated pressure in the line
- Connection secured on the thread between the sleeve and the male coupling
- Shut-off by poppet valve
- Hexagonal profile of external sleeve for an easy connection and disconnection in high pressure conditions
- Interchangeable with MQS-SG series and similar products available on the market
- Up to size DN 20 ISO 14541 compliant

MATERIAL

Female and male coupling in high standard steel. Carbonitrided valve, springs in C98 steel, seals in NBR (other materials available on request) and back-up ring in PTFE

WORKING TEMPERATURE

-22ºF up to +230ºF (-30ºC up to +110ºC)
Specific seals available in case of higher temperatures

SAFETY FACTOR

4:1 for dynamic pressures

IMPULSE PRESSURES

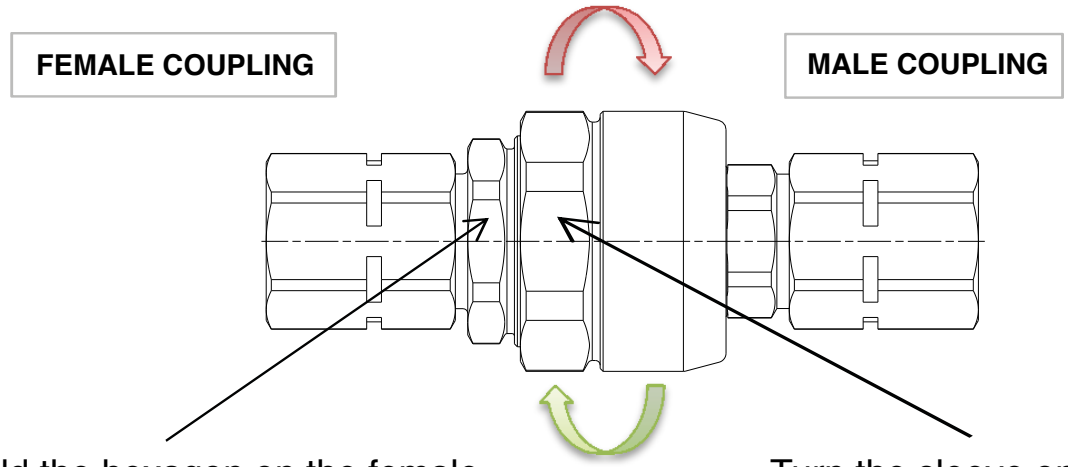
200,000 cycles at 133% of the rated one (freq. 1Hz) disconnected; 500,000 connected

TEST SPECIFICATIONS

ISO 18869

ASSEMBLY INSTRUCTIONS

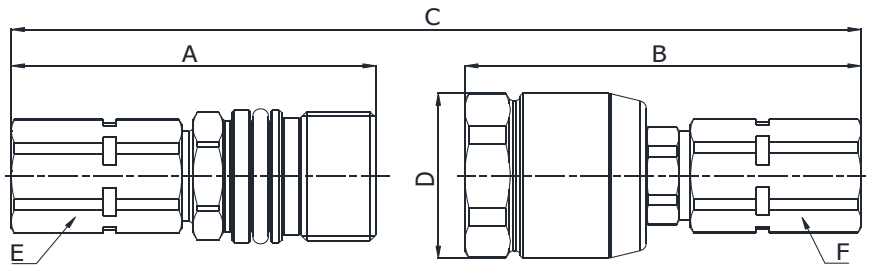
RECOMMENDED TIGHTENING TORQUES



Hold the hexagon on the female body with a wrench

Turn the sleeve on the male applying the tightening torque through the hexagon

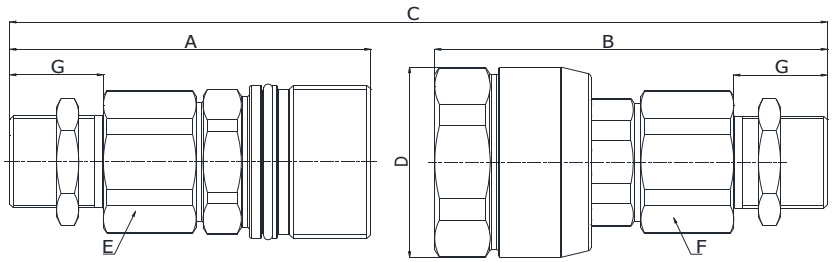
SIZE			TIGHTENING TORQUE
DN	Inch	Dash	Nm
10	3/8"	-06	50
12.5	1/2"	-08	80
20	3/4"	-12	120
25	1"	-16	180
38	1-1/2"	-24	300



Q06211041A
Q06111041A

BSP TERMINATION ENDS
TO DIN 3852 X TYPE

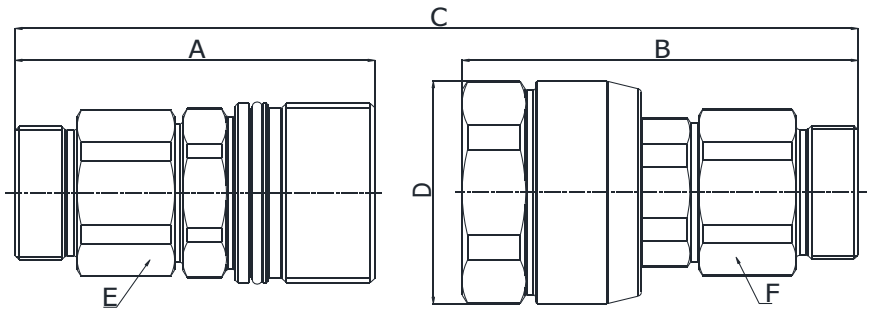
SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
10	3/8"	-06	Q06211041A-06-04	Q06111041A-06-04	1/4"	68	74	A+B-26,5	ø34,7	22	22
10	3/8"	-06	Q06211041A-06-06	Q06111041A-06-06	3/8"	69.5	75.5	A+B-26,5	ø34,7	22	22
12.5	1/2"	-08	Q06211041A-08-06	Q06111041A-08-06	3/8"	66.5	74.5	A+B-26,5	ø44,4	27	27
12.5	1/2"	-08	Q06211041A-08-08	Q06111041A-08-08	1/2"	69.5	77.5	A+B-26,5	ø44,4	27	27
20	3/4"	-12	Q06211041A-12-08	Q06111041A-12-08	1/2"	80.8	89.3	A+B-31	ø54,2	34	34
20	3/4"	-12	Q06211041A-12-12	Q06111041A-12-12	3/4"	82.8	91.3	A+B-31	ø54,2	34	34
25	1"	-16	Q06211041A-16-12	Q06111041A-16-12	3/4"	92.3	99.3	A+B-34,5	ø59,6	41	41
25	1"	-16	Q06211041A-16-16	Q06111041A-16-16	1"	95.3	102.3	A+B-34,5	ø59,6	41	41
38	1-1/2"	-24	Q06211041A-24-20	Q06111041A-24-20	1.1/4"	124.5	137.3	A+B-47,5	ø86,6	60	60
38	1-1/2"	-24	Q06211041A-24-24	Q06111041A-24-24	1.1/2"	127.5	140.3	A+B-47,5	ø86,6	60	60



Q06211870B
Q06111870B

METRIC TERMINATION ENDS
BULKHEAD S SERIES

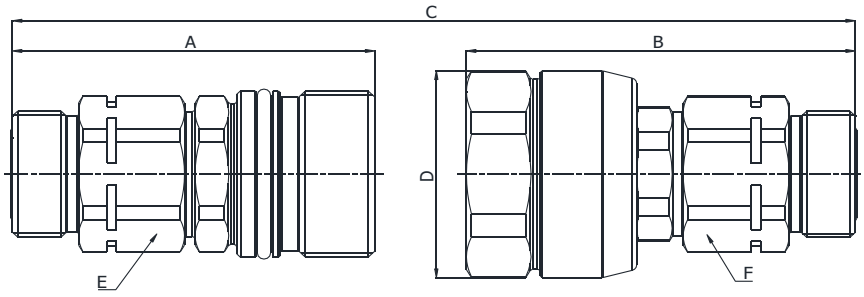
SIZE			PART NUMBER		THREAD	DIMENSIONS mm						
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E		F
38	1-1/2"	-24	Q06211870B-24-42	Q06111870B-24-42	M42x2	146.7	159.5	A+B-47,3	ø86,6	60	60	38



Q06211120A
Q06111120A

METRIC TERMINATION ENDS
TO ISO 8434-1 S SERIES

SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
38	1-1/2"	-24	Q06211120A-24-52	Q06111120A-24-52	M52x2	127.6	140	A+B-47,3	ø86,6	60	60



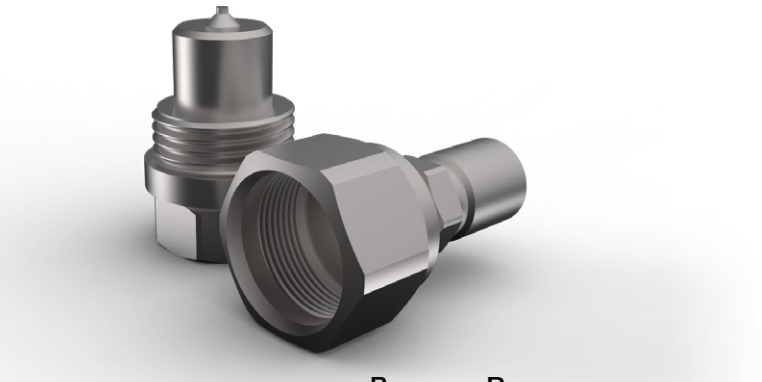
Q06211240A
Q06111240A

ORFS TERMINATION ENDS
TO ISO 8434-3

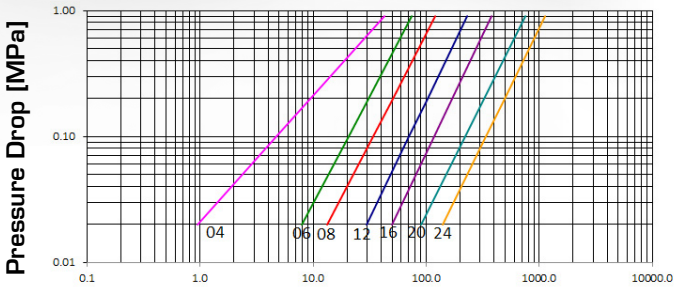
SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
25	1"	-16	Q06211240A-16-16	Q06111240A-16-16	1.7/16"-12 UN	98.3	102.8	A+B-34,5	ø59,6	46	46

manuli HYDRAULICS

SCREW TYPE HEAVY DUTY

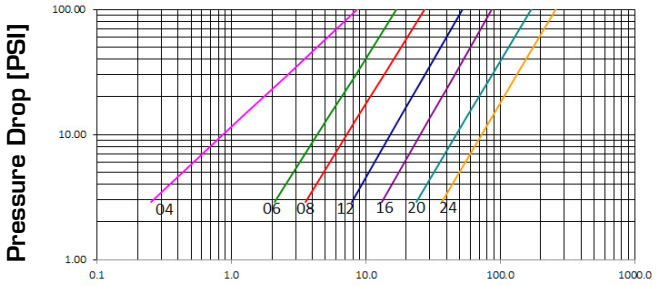


Pressure Drop



Flow Rate [l/min]

Pressure Drop



Flow Rate [US gallons/min]

TECHNICAL DATA

SIZE			WORKING PRESSURE (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		OIL SPILLAGE Connection/ Disconnection		MINIMUM BURST PRESSURE						CONNECTION/ DISCONNECTION UNDER PRESSURE
									Male		Female		M & F		
DN	inch	Dash	MPa	PSI	l/min	US GPM	cc.	cubic inch	MPa	PSI	MPa	PSI	MPa	PSI	
6	¼	04	70	10150	10	2.6	0.4	0.024	290	42050	350	50750	300	43500	Allowed up to 30 MPa
10	⅜	06	60	8700	31	8.2	1.5	0.092	250	36250	330	47850	320	46400	Allowed up to 30 MPa
12.5	½	08	50	7250	51	13.5	2	0.122	200	29000	260	37700	310	44950	Allowed up to 30 MPa
20	¾	12	50	7250	102	26.9	4	0.244	200	29000	250	36250	310	44950	Allowed up to 30 MPa
25	1	16	50	7250	170	44.9	7.5	0.458	200	29000	230	33350	270	39150	Allowed up to 30 MPa
31	1¼	20	40	5800	325	85.9	15	0.916	160	23200	170	24650	230	33350	Allowed up to 15 MPa
38	1½	24	32	4640	494	130.5	23	1.404	130	18850	140	20300	150	21750	Allowed up to 15 MPa

The rated flow represents the normal operating condition. The maximum recommended flow rate is equal to 1.5 times the rated flow

PRODUCT DESCRIPTION

- Screw-on connection/disconnection system
- Sleeve with hexagon area internal components reinforced, made in steel
- Hardened valve bodies
- Three-part poppet valve with a moulded shaped seal
- Mechanical backstop to prevent partial enclosures of valves due to peaks and reverse flow
- Interchangeable with other products and widely used on the market
- Accessories (plugs and caps) and spare part kits available
- Wide range of termination ends

MATERIAL

Couplings in steel with some stressed area hardened. Carbonitrided valve, springs in C98 steel, seals in NBR and back-up ring in PTFE

WORKING TEMPERATURE

-22°F up to +230°F (-30°C up to +110°C)

SAFETY FACTOR

4:1 for dynamic pressures

IMPULSE PRESSURES

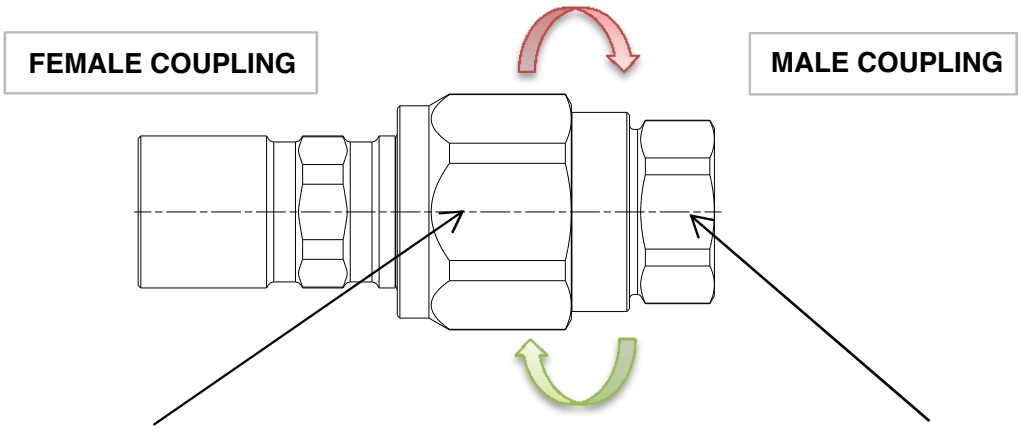
200,000 cycles (connected and disconnected conditions) at 120% of the rated one (freq. 1Hz)

TEST SPECIFICATIONS

ISO 18869

ASSEMBLY INSTRUCTIONS

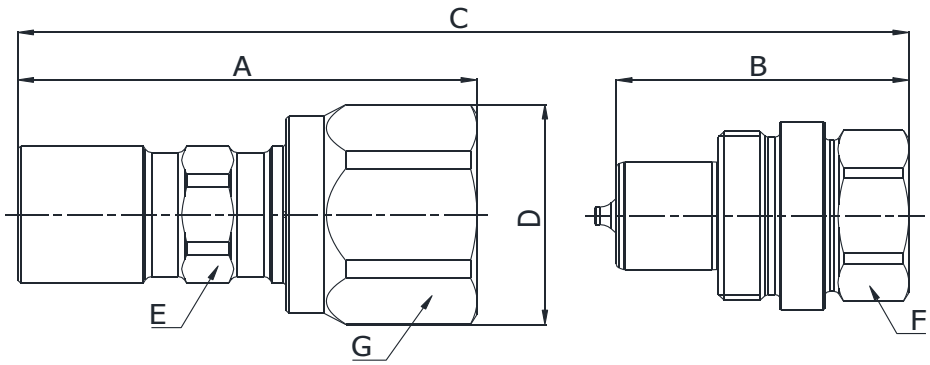
RECOMMENDED TIGHTENING TORQUES



Turn the sleeve on the female applying the tightening torque through the hexagon

Hold the hexagon on the male body with a wrench

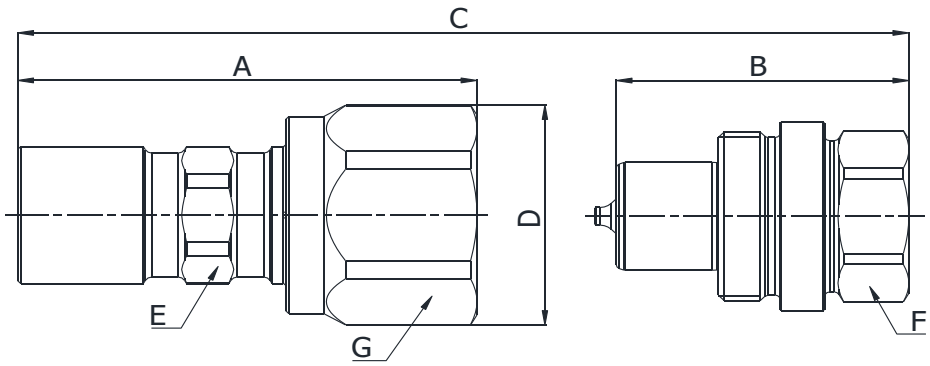
SIZE			TIGHTENING TORQUE
DN	Inch	Dash	Nm
6	1/4"	-04	50
10	3/8"	-06	70
12.5	1/2"	-08	100
19	**3/4"**	-12	150
25	1"	-16	250
31	1-1/4"	-20	400
38	1-1/2"	-24	500



Q05411041A
Q05311041A

BSP TERMINATION ENDS
TO DIN 3852 X TYPE

SIZE			PART NUMBER		THREAD	DIMENSIONS mm							
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F	G	
6.3	1/4"	-04	Q05411041A-04-04	Q05311041A-04-04	1/4"	63	42.2	A+B-20,8	ø35	19	22	32	
10	3/8"	-06	Q05411041A-06-06	Q05311041A-06-06	3/8"	72.5	46.2	A+B-25,9	ø38,5	22	27	35	
12.5	1/2"	-08	Q05411041A-08-08	Q05311041A-08-08	1/2"	82.1	54.4	A+B-27,3	ø45	27	32	41	
20	3/4"	-12	Q05411041A-12-12	Q05311041A-12-12	3/4"	93.7	61.4	A+B-31,9	ø55	35	41	50	
25	1"	-16	Q05411041A-16-16	Q05311041A-16-16	1"	105.8	68.3	A+B-37	ø66	41	50	60	
31.5	1.1/4"	-20	Q05411041A-20-20	Q05311041A-20-20	1.1/4"	131.9	82	A+B-53,9	ø88	55	70	80	
38	1.1/2"	-24	Q05411041A-24-24	Q05311041A-24-24	1.1/2"	158.9	102	A+B-70,4	ø99	60	80	90	



Q05411341A
Q05311341A

NPTF TERMINATION END
TO ANSI B 1.20.3

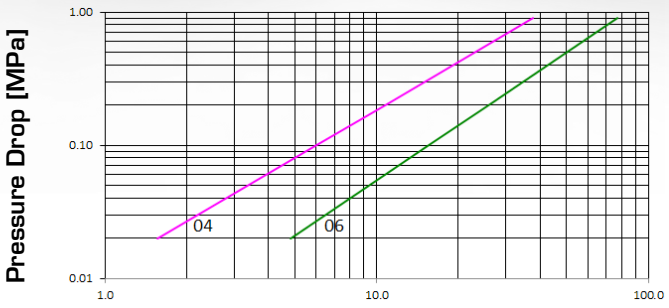
SIZE			PART NUMBER		THREAD	DIMENSIONS mm							
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F	G	
6.3	1/4"	-04	Q05411341A-04-04	Q05311341A-04-04	1/4" NPTF	63	42.2	A+B-20,8	ø35	19	22	32	
10	3/8"	-06	Q05411341A-06-06	Q05311341A-06-06	3/8" NPTF	72.5	46.2	A+B-25,9	ø38,5	22	27	35	
12.5	1/2"	-08	Q05411341A-08-08	Q05311341A-08-08	1/2" NPTF	82.1	54.4	A+B-27,3	ø45	27	32	41	
20	3/4"	-12	Q05411341A-12-12	Q05311341A-12-12	3/4" NPTF	93.7	61.4	A+B-31,9	ø55	35	41	50	
25	1"	-16	Q05411341A-16-16	Q05311341A-16-16	1" NPTF	105.8	68.3	A+B-37	ø66	41	50	60	
31.5	1.1/4"	-20	Q05411341A-20-20	Q05311341A-20-20	1.1/4" NPTF	131.9	82	A+B-53,9	ø88	55	70	80	
38	1.1/2"	-24	Q05411341A-24-24	Q05311341A-24-24	1.1/2" NPTF	158.9	102	A+B-70,4	ø99	60	80	90	

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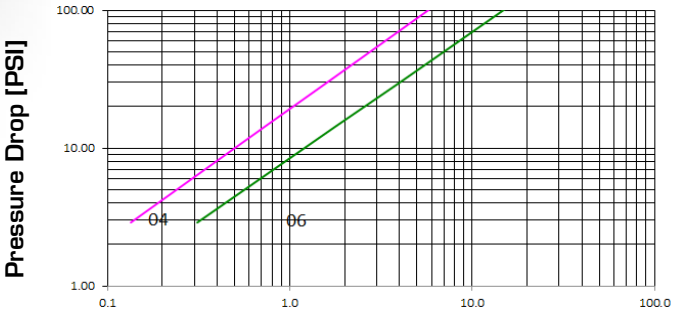


SCREW TYPE HYDRAULIC CYLINDERS (POPPET)

Pressure Drop



Pressure Drop



TECHNICAL DATA

SIZE			WORKING PRESSURE (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		OIL SPILLAGE Connection/ Disconnection		MINIMUM BURST PRESSURE						CONNECTION/ DISCONNECTION UNDER PRESSURE
									Male		Female		M & F		
DN	inch	Dash	MPa	PSI	l/min	US GPM	cc.	cubic inch	MPa	PSI	MPa	PSI	MPa	PSI	
6.3	¼	04	72	10440	11	2.9	0.4	0.024	350	50750	310	44950	320	46400	Allowed Max. 10 MPa*
10	⅜	06	72	10440	26	7	0.6	0.037	290	42050	300	43500	290	42050	Allowed Max. 10 MPa*

The rated flow represents the normal operating condition. The maximum recommended flow rate is equal to 1.5 times the rated flow
*In one part

PRODUCT DESCRIPTION

- Screw-type couplings specially designed for very high pressure applications on cylinders and hydraulic rams
- Connection and disconnection is made by screwing the sleeve and can be made with residual pressure in the line
- Connection secured on the thread between the sleeve and the male coupling
- Shut-off by poppet valve provides effective hydraulic sealing
- Interchangeable with other products and widely used in the USA and Europe
- ISO 14540 compliant

MATERIAL

Female and male coupling in steel. Carbonitrided valve, springs in C98 steel, seals in NBR (other materials available on request) and back-up ring in PTFE

WORKING TEMPERATURE

-22°F up to +230°F (-30°C up to +110°C)
Specific seals available in case of higher temperatures

SAFETY FACTOR

4:1 for dynamic pressures

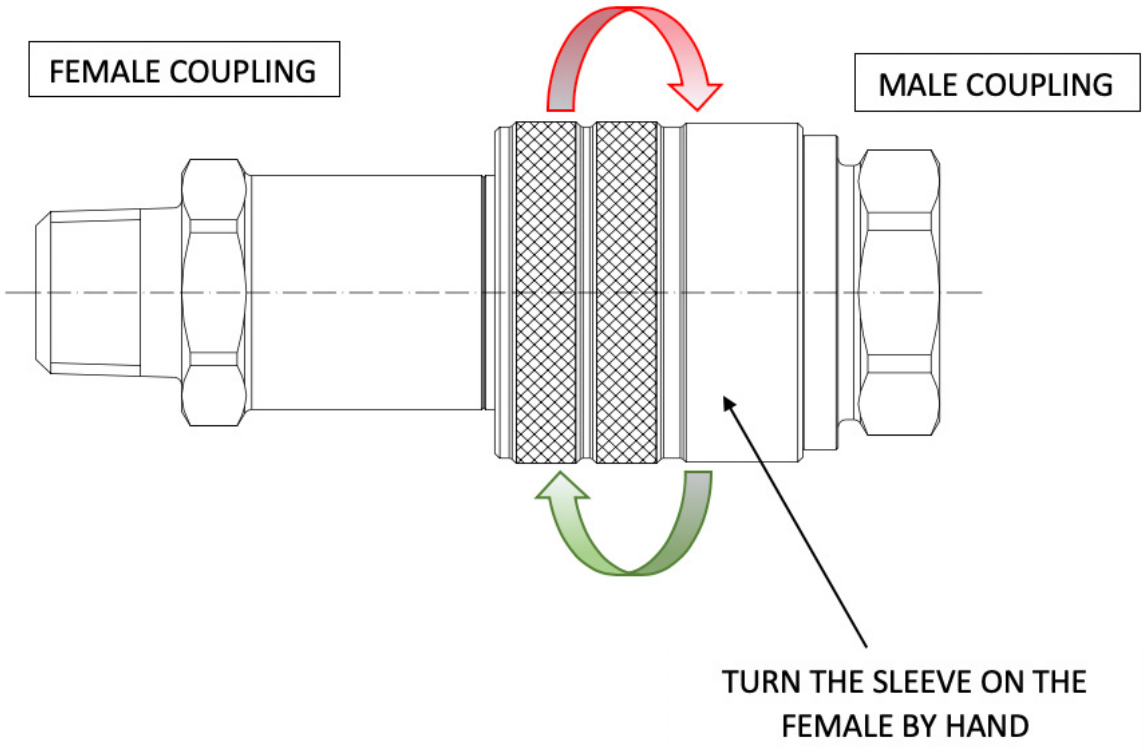
IMPULSE PRESSURES

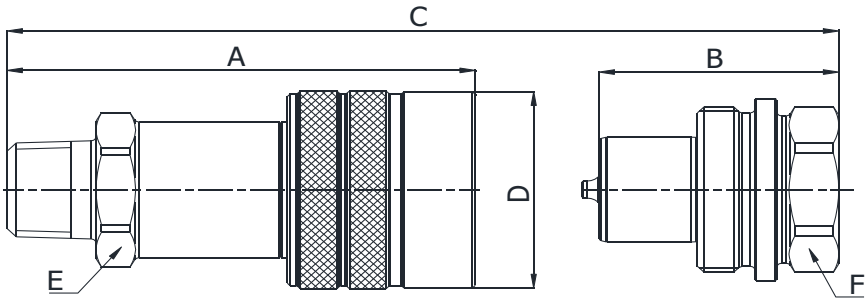
10,000 cycles at 100% of the rated one (freq. 1Hz)

TEST SPECIFICATIONS

ISO 18869

ASSEMBLY INSTRUCTIONS

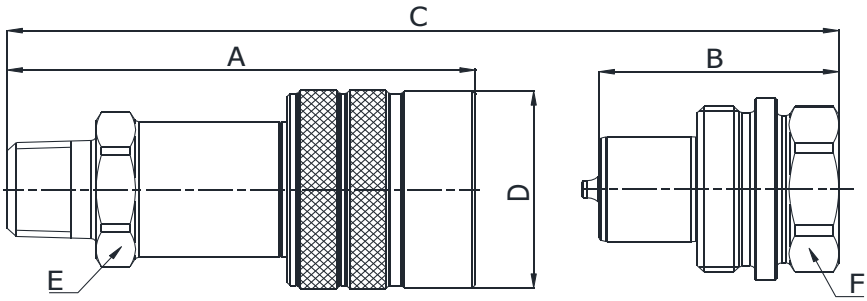




Q05611280B

NPT TERMINATION ENDS
TO ANSI B1.20.3

SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
6.3	1/4"	-04	Q05611280B-04-04	-	1/4" NPTF	62.4	-	A+B-19	ø30	21	-
10	3/8"	-06	Q05611280B-06-04	-	1/4" NPTF	76	-	A+B-25	ø35,6	25	-
10	3/8"	-06	Q05611280B-06-06	-	3/8" NPTF	76	-	A+B-25	ø35,6	25	-



Q05511341B

NPT TERMINATION ENDS
TO ANSI B1.20.3

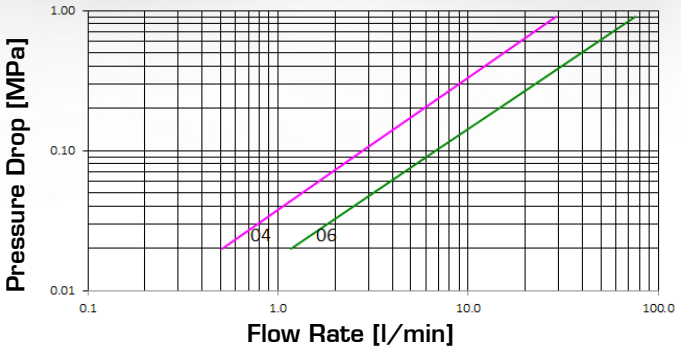
SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
6.3	1/4"	-04	-	Q05511341B-04-04	1/4" NPTF	-	34	A+B-19	-	-	22
10	3/8"	-06	-	Q05511341B-06-04	1/4" NPTF	-	39	A+B-25	-	-	27
10	3/8"	-06	-	Q05511341B-06-06	3/8" NPTF	-	39	A+B-25	-	-	27

manuli HYDRAULICS

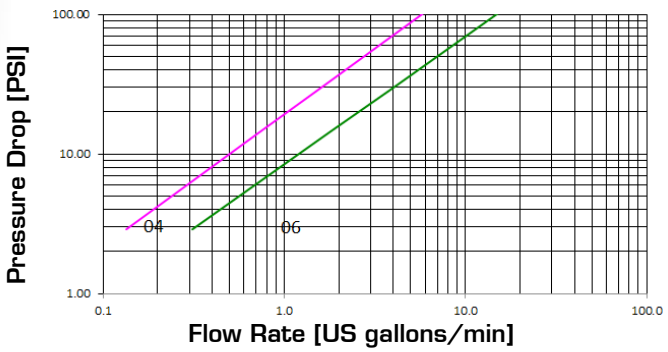


SCREW TYPE HYDRAULIC CYLINDERS (BALL)

Pressure Drop



Pressure Drop



TECHNICAL DATA

SIZE			WORKING PRESSURE (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		OIL SPILLAGE Connection/ Disconnection		MINIMUM BURST PRESSURE						CONNECTION/ DISCONNECTION UNDER PRESSURE
									Male		Female		M & F		
DN	inch	Dash	MPa	PSI	l/min	US GPM	cc.	cubic inch	MPa	PSI	MPa	PSI	MPa	PSI	
6.3	¼	04	72	10440	11	2.9	0.4	0.024	350	50750	310	44950	320	46400	Allowed Max. 10 MPa*
10	⅜	06	72	10440	26	7	0.6	0.037	290	42050	300	43500	290	42050	Allowed Max. 10 MPa*

The rated flow represents the normal operating condition. The maximum recommended flow rate is equal to 1.5 times the rated flow
*In one part

PRODUCT DESCRIPTION

- Screw-type couplings specially designed for very high pressure applications on cylinders and hydraulic rams
- Connection and disconnection is made by screwing the sleeve and can be made with residual pressure in the line
- Connection secured on the thread between the sleeve and the male coupling
- Shut-off by ball valve provides effective hydraulic sealing
- Interchangeable with other products and widely used in the USA and Europe
- ISO 14540 compliant

MATERIAL

Female and male coupling in steel. Carbonitrided valve, springs in C98 steel, seals in NBR (other materials available on request) and back-up ring in PTFE

WORKING TEMPERATURE

-22°F up to +230°F (-30°C up to +110°C)
Specific seals available in case of higher temperatures

SAFETY FACTOR

4:1 for dynamic pressures

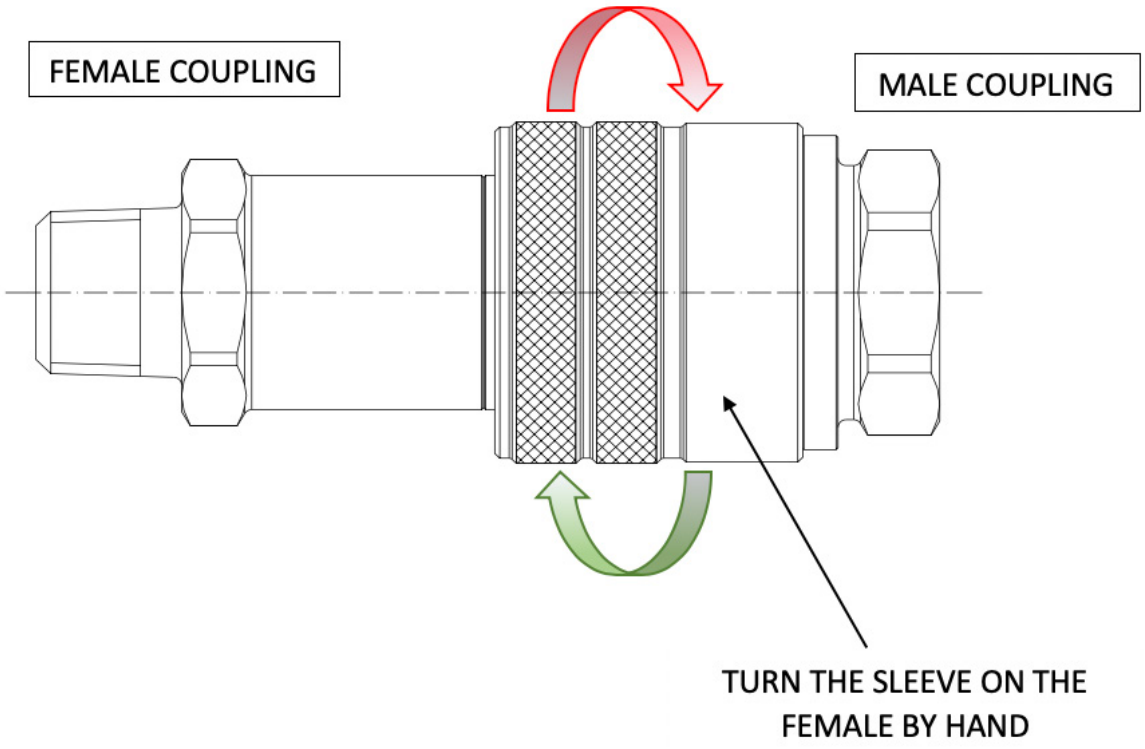
IMPULSE PRESSURES

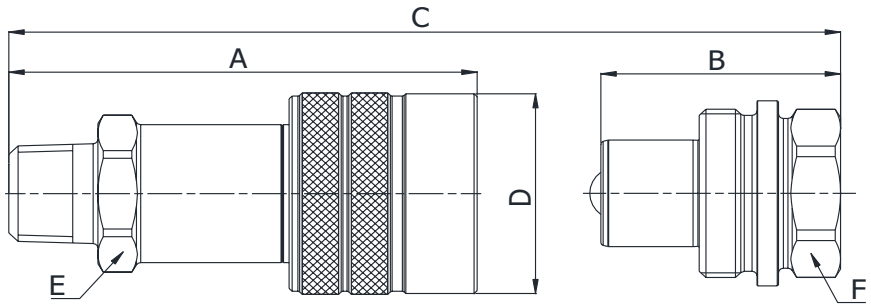
10,000 cycles at 100% of the rated one (freq. 1Hz)

TEST SPECIFICATIONS

ISO 7241-2

ASSEMBLY INSTRUCTIONS

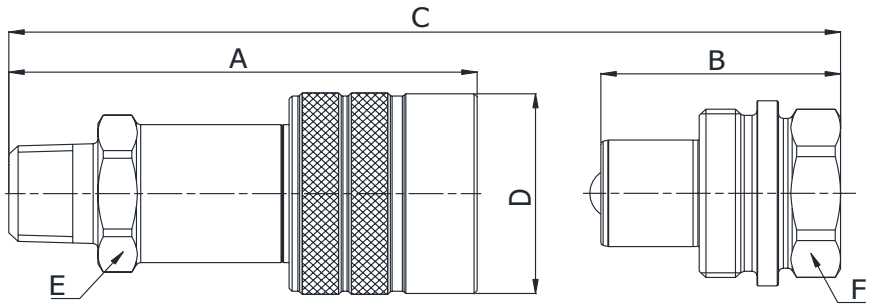




Q05611280C

NPT TERMINATION ENDS
TO ANSI B1.20.3

SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
6.3	1/4"	-04	Q05611280C-04-04		1/4" NPTF	62.4	-	A+B-19	ø30	21	-
10	3/8"	-06	Q05611280C-06-04	-	1/4" NPTF	75.6	-	A+B-25	ø35,6	25	-
10	3/8"	-06	Q05611280C-06-06	-	3/8" NPTF	75.6	-	A+B-25	ø35,6	25	-



Q05510341C

NPT TERMINATION ENDS
TO ANSI B1.20.3

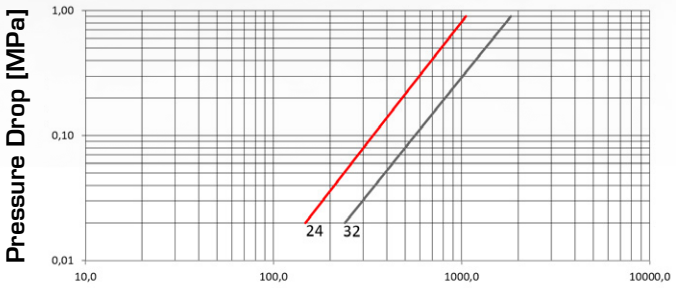
SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
6.3	1/4"	-04	-	Q05510341C-04-04	1/4" NPTF	-	32	A+B-19	-	-	22
10	3/8"	-06	-	Q05510341C-06-04	1/4" NPTF	-	39	A+B-25	-	-	27
10	3/8"	-06	-	Q05510341C-06-06	3/8" NPTF	-	39	A+B-25	-	-	27

manuli HYDRAULICS

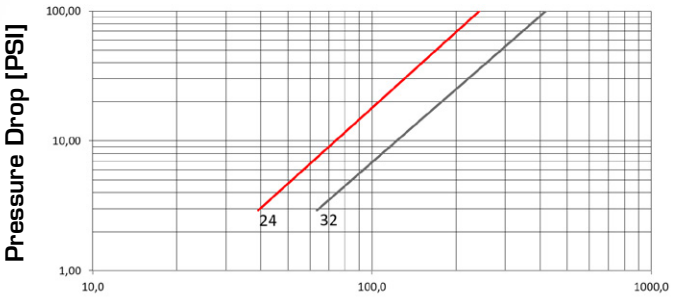
SCREW TYPE FOR OIL & GAS



Pressure Drop



Pressure Drop



TECHNICAL DATA

SIZE			WORKING PRESSURE CONNECTED (Dynamic)		WORKING PRESSURE DISCONNECTED (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		OIL SPILLAGE Connection/ Disconnection		MINIMUM BURST PRESSURE						CONNECTION/ DISCONNECTION UNDER PRESSURE
											Male		Female		M & F		
DN	inch	Dash	MPa	PSI	MPa	PSI	l/min	US GPM	cc.	cubic inch	MPa	PSI	MPa	PSI	MPa	PSI	
38	1-1/2	-24	35	5075	25	3625	485	128.1	35	2.137	100	14500	120	17400	150	21750	Residual pressure
51	2	-32	35	5075	25	3625	820	216.6	80	4.884	100	14500	100	14500	180	26100	Residual pressure

The rated flow represents the normal operating condition. The maximum recommended flow rate is equal to 1.5 times the rated flow

PRODUCT DESCRIPTION

- Screw-type couplings specially designed for Oil & Gas applications
- Wing Nut shaped sleeve for easier connection and disconnection by hand, also in case of residual pressure in the line
- Connection secured on the thread between the sleeve and the female coupling
- Inspection holes to check full connection
- Shut-off by poppet valve
- Interchangeable with similar products available on the market

MATERIAL

Female and male couplings in high grade carbon steel. Springs in C98 steel, seals in NBR (other materials available on request) and back-up ring in PTFE

WORKING TEMPERATURE

-22°F up to +230°F (-30°C up to +110°C)

SAFETY FACTOR

4:1 for dynamic pressures

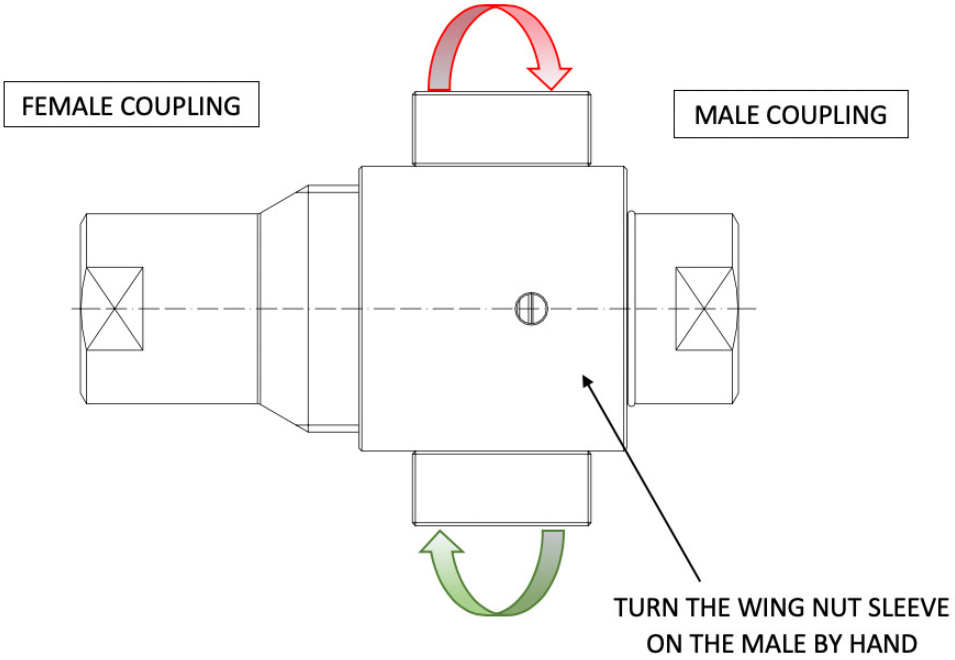
IMPULSE PRESSURES

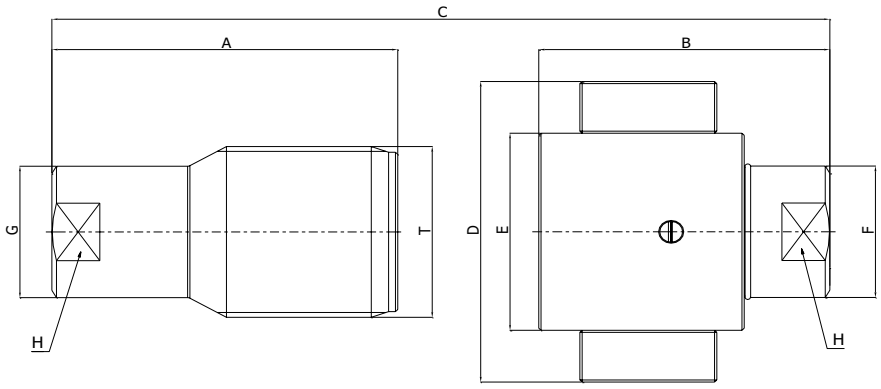
500,000 cycles at 120% of the rated one (freq. 1Hz) in connected and disconnected conditions.

TEST SPECIFICATIONS

ISO 18869

ASSEMBLY INSTRUCTIONS





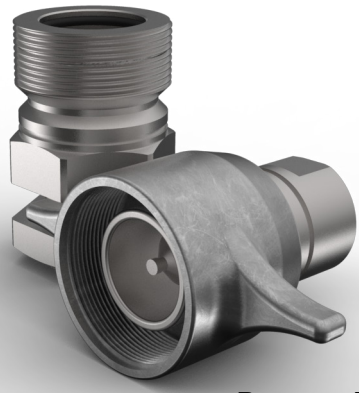
Q07711041A
Q07611041A

BSP TERMINATION ENDS
TO DIN 3852 X TYPE

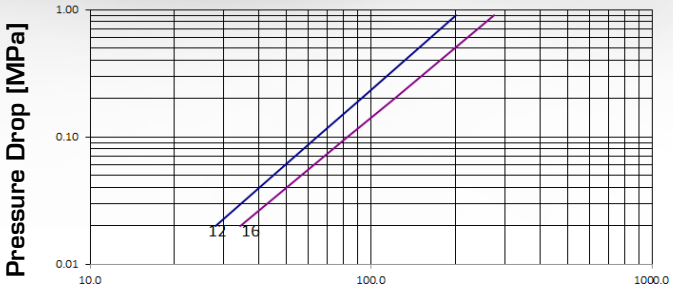
SIZE			PART NUMBER		THREAD	DIMENSIONS mm								
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F	G	H	T
38	1-1/2	-24	Q07711041A-24-24	Q07611041A-24-24	1.1/2"	151.5	127.5	A+B-40,5	145.2	ø95,2	ø63,5	ø63,5	57.1	STUB ACME 3-1/4 - 4
51	2	-32	Q07711041A-32-32	Q07611041A-32-32	2"	179	154	A+B-51	168.7	ø118,7	ø83	ø82,5	76.2	STUB ACME 4 - 4

manuli HYDRAULICS

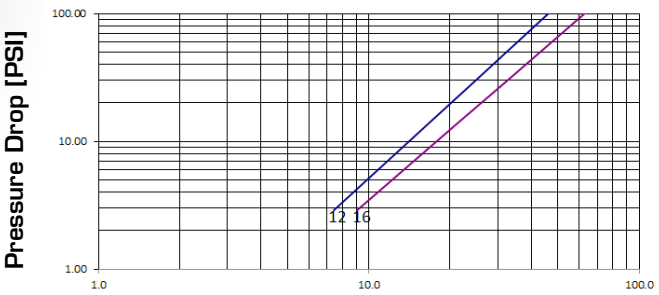
SCREW TYPE FOR TRUCKS



Pressure Drop



Pressure Drop



TECHNICAL DATA

SIZE			WORKING PRESSURE (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		OIL SPILLAGE Connection/ Disconnection		MINIMUM BURST PRESSURE						CONNECTION/ DISCONNECTION UNDER PRESSURE
									Male		Female		M & F		
DN	inch	Dash	MPa	PSI	l/min	US GPM	cc.	cubic inch	MPa	PSI	MPa	PSI	MPa	PSI	
20	¾	12	25	3625	92	24.3	7.5	0.458	100	14500	120	17400	110	15950	Residual pressure
25	1	16	25	3625	121	32.0	9	0.549	120	17400	140	20300	130	18850	Residual pressure

The rated flow represents the normal operating condition. The maximum recommended flow rate is equal to 1.5 times the rated flow

PRODUCT DESCRIPTION

- Screw-type couplings specially designed for truck trailer applications
- Wing Nut shaped sleeve for easier connection and disconnection by hand, also in case of residual pressure in the line
- Connection secured on the thread between the sleeve and the male coupling
- Shut-off by poppet valve
- Interchangeable with similar products available on the market

MATERIAL

Female and male coupling in steel. Carbonitrided valve, springs in C98 steel, seals in NBR (other materials available on request) and back-up ring in PTFE

WORKING TEMPERATURE

-22ºF up to +230ºF (-30ºC up to +110ºC)

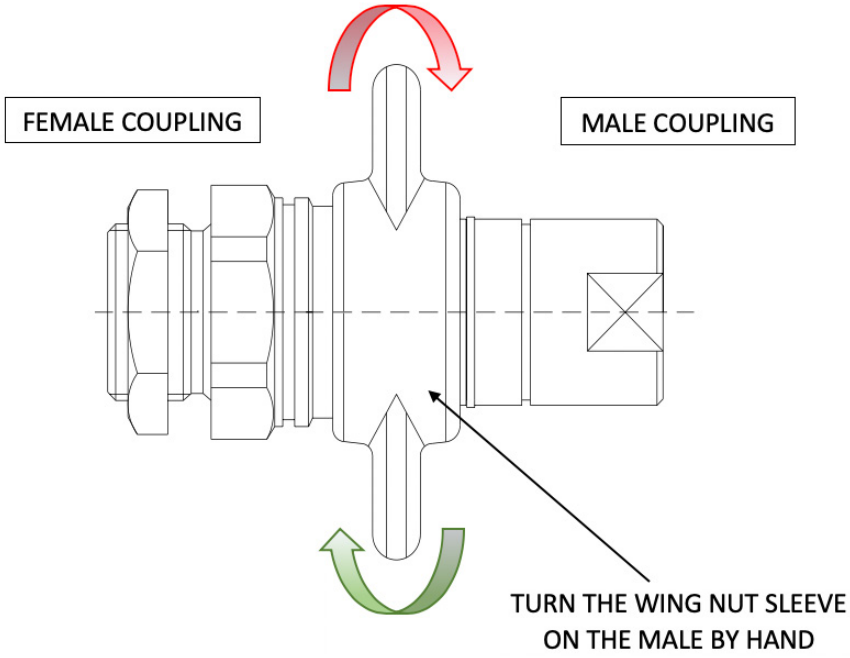
SAFETY FACTOR

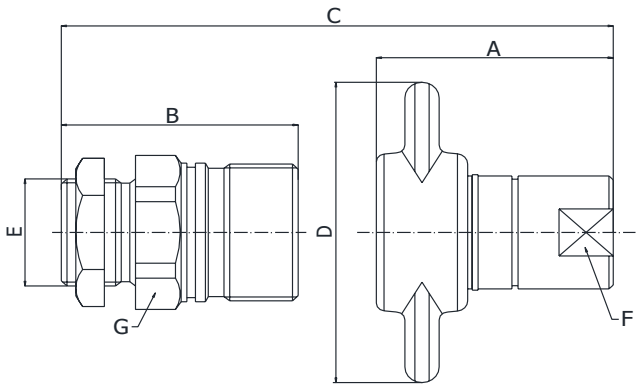
4:1 for dynamic pressures and 2:1 for static pressures

TEST SPECIFICATIONS

ISO 18869

ASSEMBLY INSTRUCTIONS





Q05811041A
Q05711041A

BSP TERMINATION ENDS
TO DIN 3852 X TYPE

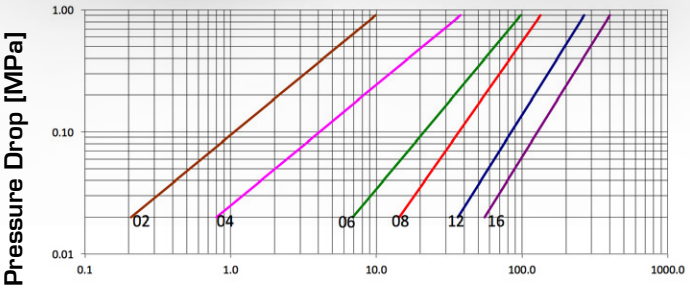
SIZE			PART NUMBER		THREAD	DIMENSIONS mm							
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F	G	
20	3/4"	-12	Q05811041A-12-12	Q05711041A-12-12	3/4"	78	78	138	117	1.1/4"	33	46	
25	1"	-16	Q05811041A-16-16	Q05711041A-16-16	1"	83	83	148	117	1.1/4"	40	55	

manuli® HYDRAULICS

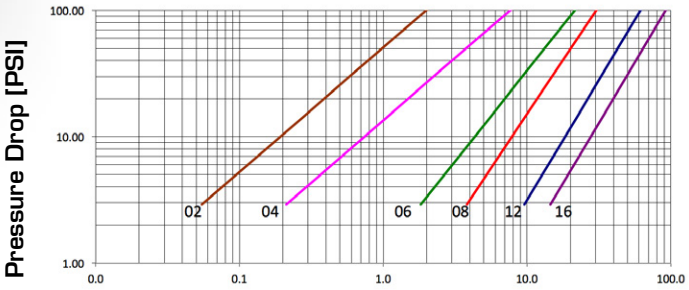


STAINLESS STEEL ISO B POPPET VALVE

Pressure Drop



Pressure Drop



TECHNICAL DATA

SIZE			WORKING PRESSURE (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		CONNECTION EFFORT		OIL SPILLAGE Connection/ Disconnection		MINIMUM BURST PRESSURE						CONNECTION/ DISCONNECTION UNDER PRESSURE
											Male		Female		M & F		
DN	inch	Dash	MPa	PSI	l/min	US GPM	N	lb.	cc.	cubic inch	MPa	PSI	MPa	PSI	MPa	PSI	
5	⅛	02	40	5800	2	0.6	28	6.3	0.5	0.031	210	30450	280	40600	160	23200	Not allowed
6.3	¼	04	35	5075	8	2.2	36	8.1	0.8	0.049	150	21750	220	31900	230	33350	Not allowed
10	⅜	06	30	4350	34	9.1	38	8.5	1.5	0.092	130	18850	160	23200	180	26100	Not allowed
12.5	½	08	30	4350	55	14.6	50	11.2	2.5	0.153	120	17400	130	18850	140	20300	Not allowed
20	¾	12	25	3625	122	32.1	56	12.6	8.5	0.519	110	15950	110	15950	130	18850	Not allowed
25	1	16	25	3625	183	48.3	56	12.6	15.0	0.915	110	15950	110	15950	100	14500	Not allowed

The rated flow represents the normal operating condition. The maximum recommended flow rate is equal to 1.5 times the rated flow

PRODUCT DESCRIPTION

- Reference series for all industrial applications
- Simple connection and disconnection by pulling back the sleeve
- Positive, quick connection of the male into the female by latching the ball system
- Shut-off by poppet valve
- High resistant materials
- Interchangeable according to ISO 7241 series B
- FKM (VITON) seal

MATERIAL

Female and male in AISI 316 steel. Couplings in high grade carbon steel hardened. Springs in C98 steel, seals in FKM (VITON) (other materials on request) and back-up ring in PTFE

WORKING TEMPERATURE

-25ºC up to +200ºC
For other temperatures, the quick coupling is assembled with specific seals

SAFETY FACTOR

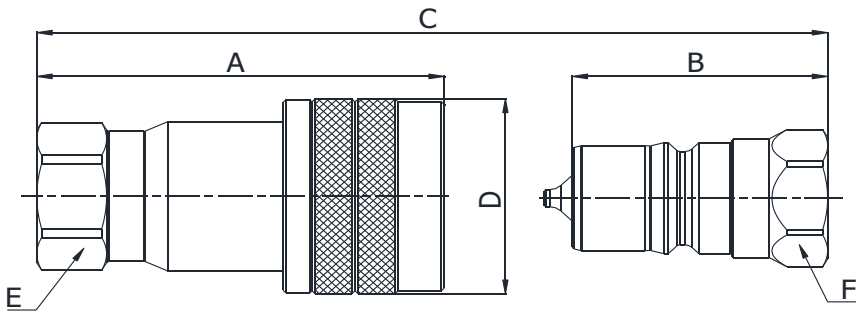
4:1 for dynamic pressures

IMPULSE PRESSURES

Withstands 100,000 cycles of impulse pressure at 133% of the rated one (freq. 1Hz)

TEST SPECIFICATIONS

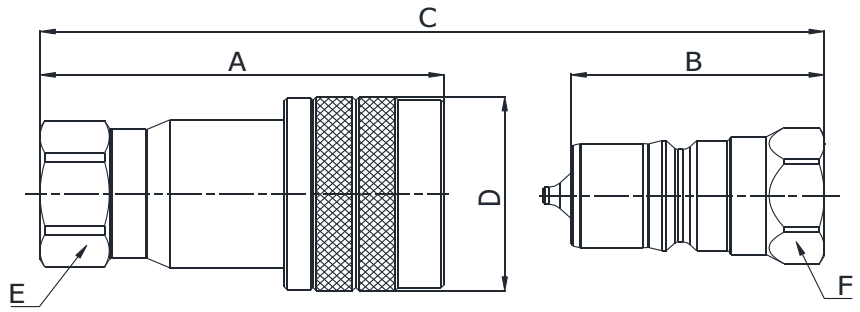
ISO 18869



Q02423041A
Q02123041A

BSP TERMINATION ENDS
TO DIN 3852 X TYPE
FKM SEAL

SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
5	1/8"	-02	Q02423041A-02-02	Q02123041A-02-02	1/8"	48.5	30	A+B-18,2	ø22	15	14
6.3	1/4"	-04	Q02423041A-04-04	Q02123041A-04-04	1/4"	58.8	37.2	A+B-21,2	ø28	19	19
10	3/8"	-06	Q02423041A-06-06	Q02123041A-06-06	3/8"	66.2	41.5	A+B-24,4	ø35	24	22
12.5	1/2"	-08	Q02423041A-08-08	Q02123041A-08-08	1/2"	74	46.5	A+B-27,2	ø42	30	27
20	3/4"	-12	Q02423041A-12-12	Q02123041A-12-12	3/4"	91	56.5	A+B-34,2	ø52	36	36
25	1"	-16	Q02423041A-16-16	Q02123041A-16-16	1"	104	64.5	A+B-39,2	ø60	41	41



Q02423341A
Q02123341A

NPTF TERMINATION END
TO ANSI B 1.20.3
FKM SEAL

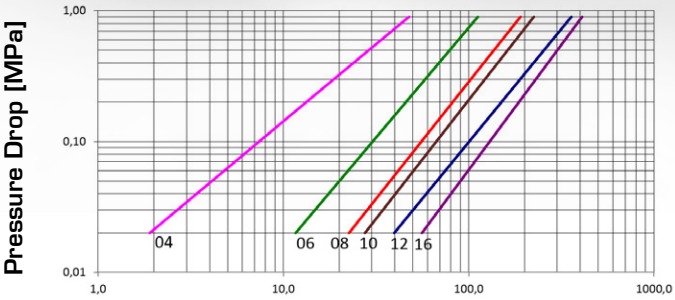
SIZE			PART NUMBER		THREAD	DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F
5	1/8"	-02	Q02423341A-02-02	Q02123341A-02-02	1/8" NPTF	48.5	30	A+B-18,2	ø22	15	14
6.3	1/4"	-04	Q02423341A-04-04	Q02123341A-04-04	1/4" NPTF	58.8	37.2	A+B-21,2	ø28	19	19
10	3/8"	-06	Q02423341A-06-06	Q02123341A-06-06	3/8" NPTF	66.2	41.5	A+B-24,4	ø35	24	22
12.5	1/2"	-08	Q02423341A-08-08	Q02123341A-08-08	1/2" NPTF	74	46.5	A+B-27,2	ø42	30	27
20	3/4"	-12	Q02423341A-12-12	Q02123341A-12-12	3/4" NPTF	91	56.5	A+B-34,2	ø52	36	36
25	1"	-16	Q02423341A-16-16	Q02123341A-16-16	1" NPTF	104	64.5	A+B-39,2	ø60	41	41

manuli® HYDRAULICS

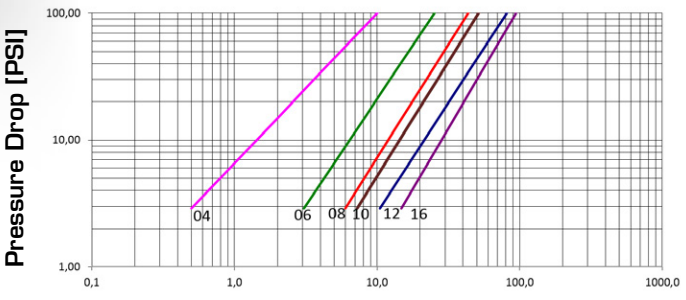
STAINLESS STEEL FLAT FACE



Pressure Drop



Pressure Drop



TECHNICAL DATA

SIZE			WORKING PRESSURE CONNECTED (Dynamic)		WORKING PRESSURE DISCONNECTED (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		CONNECTION EFFORT		OIL SPILLAGE Connection/ Disconnection		MINIMUM BURST PRESSURE						CONNECTION WITH FEMALE UNDER PRESSURE (MALE AT 0 MPa)
													Male		Female		M & F		
DN	inch	Dash	MPa	PSI	MPa	PSI	l/min	US GPM	N	lb.	cc.	cubic inch	MPa	PSI	MPa	PSI	MPa	PSI	
6.3	1/4"	04	35	5075	32	4640	13	3.4	120	27.0	0.005	0.0003	200	29000	130	18850	220	31900	Allowed up to 6 MPa
10	3/8"	06	35	5075	32	4640	46	12.2	130	29.2	0.007	0.0004	180	26100	130	18850	170	24650	Allowed up to 6 MPa
12.5	**1/2"**	08	35	5075	25	3625	82	21.7	150	33.7	0.008	0.0005	100	14500	100	14500	140	20300	Allowed up to 4 MPa
16	**5/8"**	10	35	5075	25	3625	98	25.9	160	36.0	0.008	0.0005	100	14500	100	14500	140	20300	Allowed up to 3 MPa
19	**3/4"**	12	35	5075	22	3190	150	39.6	210	47.2	0.009	0.0005	90	13050	100	14500	140	20300	Allowed up to 2 MPa
25	**1"**	16	35	5075	21	3045	186	49.1	210	47.2	0.02	0.0012	110	15950	85	12325	140	20300	Allowed up to 2 MPa

Connection with Male under pressure not allowed; Disconnection under pressure not allowed
The rated flow represents the normal operating condition. The maximum recommended flow rate is equal to 1.5 times the rated flow

PRODUCT DESCRIPTION

- Flat mating surfaces easily wiped clean to prevent contamination and spillage during connection/disconnection
- Connection is made by pushing the male coupling and disconnection by pulling back the sleeve of the female
- Positive, quick connection of the male into the female by the latching ball system
- Shut-off by flat valve
- Interchangeability according to ISO 16028 and HTMA standards (only for ⅜")
- 1,000,000 cycles at 120% of rated (freq. 1Hz - connected conditions)
- FKM (VITON) seal

MATERIAL

Female and male coupling in steel, with some stressed tempered or carbonitrided areas. Springs in AISI and C98 steel, FKM (VITON) seal. Other materials (VITON, EPDM or any others) on request

WORKING TEMPERATURE

-25°C up to +200°C
For other temperatures the coupling is assembled with the specified seals

SAFETY FACTOR

4:1 for dynamic pressures

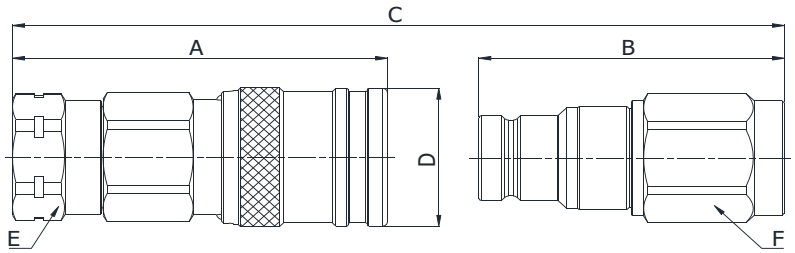
IMPULSE PRESSURES

100,000 cycles at 133% of the rated one (freq. 1Hz) in disconnected conditions. 1,000,000 cycles at 120% of rated one (freq. 1Hz) in connected conditions.

TEST SPECIFICATIONS

ISO 18869

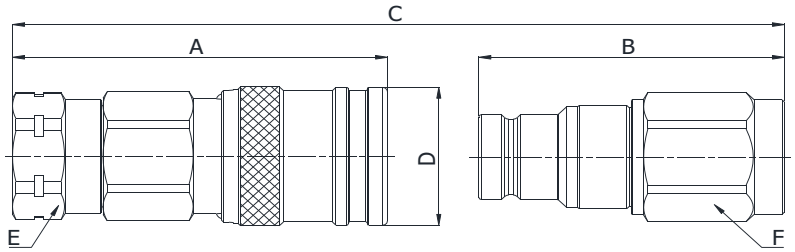
Q04123041A
Q03923041A



BSP TERMINATION ENDS
TO DIN 3852 X TYPE

SIZE			PART NUMBER		THREAD	DIMENSIONS mm							
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F		
6.3	1/4"	-04	Q04123041A-04-04	Q03923041A-04-04	1/4"	65.2	52.4	A+B-11,1	ø28	24	22		
10	3/8"	-06	Q04123041A-06-06	Q03923041A-06-06	3/8"	78.3	63.8	A+B-15,9	ø32	27	27		
10	3/8"	-06	Q04123041A-06-08	Q03923041A-06-08	1/2"	81.3	67.8	A+B-15,9	ø32	27	27		
12.5	1/2"	-08	Q04123041A-08-08	Q03923041A-08-08	1/2"	88.5	71.3	A+B-17,1	ø38	36	36		
12.5	1/2"	-08	Q04123041A-08-12	Q03923041A-08-12	3/4"	90.5	75.8	A+B-17,1	ø38	36	36		
16	5/8"	-10	Q04123041A-10-12	Q03923041A-10-12	3/4"	94.6	76.4	A+B-17,6	ø42	36	36		
19	3/4"	-12	Q04123041A-12-12	Q03923041A-12-12	3/4"	108	89.8	A+B-21.7	ø48	41	41		
25	1"	-16	Q04123041A-16-16	Q03923041A-16-16	1"	119.4	92.1	A+B-22,9	ø55	50	50		

Q04123341A
Q03923341A



NPTF TERMINATION ENDS
TO ANSI B 1.20.3

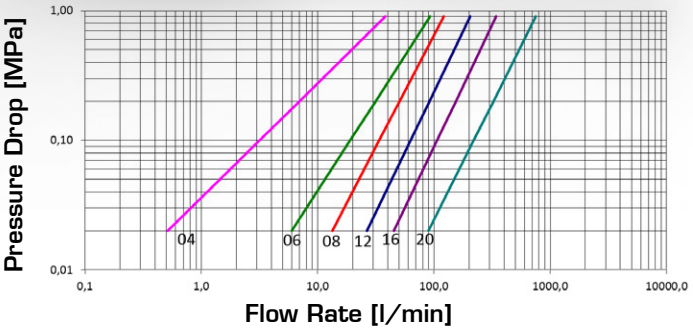
SIZE			PART NUMBER		THREAD	DIMENSIONS mm							
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F		
10	3/8"	-06	Q04123341A-06-06	Q03923341A-06-06	3/8" NPTF	78.3	63.8	A+B-15,9	ø32	27	27		
12.5	1/2"	-08	Q04123341A-08-08	Q03923341A-08-08	1/2" NPTF	88.5	71.3	A+B-17,1	ø38	36	36		
16	5/8"	-10	Q04123341A-10-12	Q03923341A-10-12	3/4" NPTF	94.6	76.4	A+B-17,6	ø42	36	36		
20	3/4"	-12	Q04123341A-12-12	Q03923341A-12-12	3/4" NPTF	108	89.8	A+B-21.7	ø48	41	41		
25	1"	-16	Q04123341A-16-16	Q03923341A-16-16	1" NPTF	119.4	92.1	A+B-22,9	ø55	50	50		

manuli® HYDRAULICS

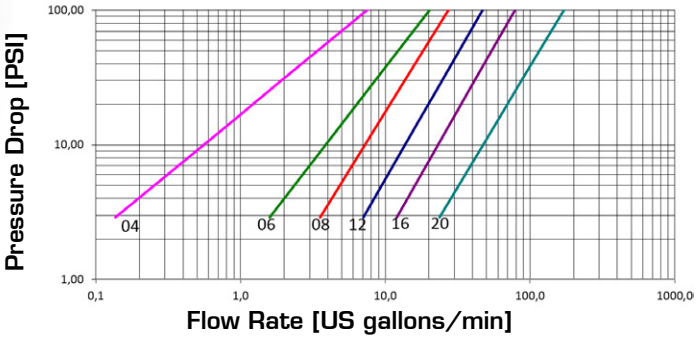


STAINLESS STEEL SCREW TYPE HEAVY DUTY

Pressure Drop



Pressure Drop



TECHNICAL DATA

SIZE			WORKING PRESSURE (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		OIL SPILLAGE Connection/ Disconnection		MINIMUM BURST PRESSURE						CONNECTION/ DISCONNECTION UNDER PRESSURE
									Male		Female		M & F		
DN	inch	Dash	MPa	PSI	l/min	US GPM	cc.	cubic inch	MPa	PSI	MPa	PSI	MPa	PSI	
6	1/4"	04	50	7250	10	2.6	0.4	0.024	220	31900	350	50750	350	50750	Not allowed
10	⅜	06	35	5075	31	8.2	1.5	0.092	150	21750	180	26100	180	26100	Not allowed
12.5	½	08	35	5075	51	13.5	2	0.134	140	20300	220	31900	250	36250	Not allowed
20	¾	12	32	4640	92	24.3	4	0.244	130	18850	220	31900	200	29000	Not allowed
25	1	16	32	4640	156	41.2	7.5	0.458	130	18850	180	26100	180	26100	Not allowed
31	1¼	20	30	4350	325	85.9	15	0.916	120	17400	150	21750	160	23200	Not allowed

The rated flow represents the normal operating condition. The maximum recommended flow rate is equal to 1.5 times the rated flow

PRODUCT DESCRIPTION

- Screw-on connection/disconnection system
- Sleeve with hexagon area internal components reinforced, made in steel
- Hardened valve bodies
- Three-part poppet valve with a moulded shaped seal
- Mechanical backstop to prevent partial enclosures of valves due to peaks and reverse flow
- Interchangeable with other products and widely used on the market
- Accessories (plugs and caps) and spare part kits available
- Wide range of termination ends
- FKM (VITON) seal

MATERIAL

Couplings in steel with some stressed area hardened. Carbonitrided valve, springs in C98 steel, FKM (VITON) seal and back-up ring in PTFE

WORKING TEMPERATURE

-25°C up to +200°C

SAFETY FACTOR

4:1 for dynamic pressures

IMPULSE PRESSURES

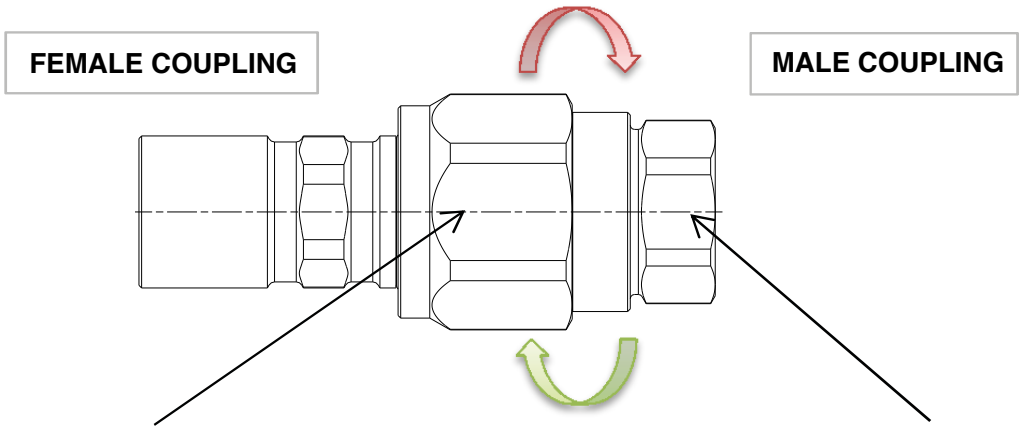
200,000 cycles (connected and disconnected conditions) at 120% of the rated one (freq. 1Hz)

TEST SPECIFICATIONS

ISO 18869

ASSEMBLY INSTRUCTIONS

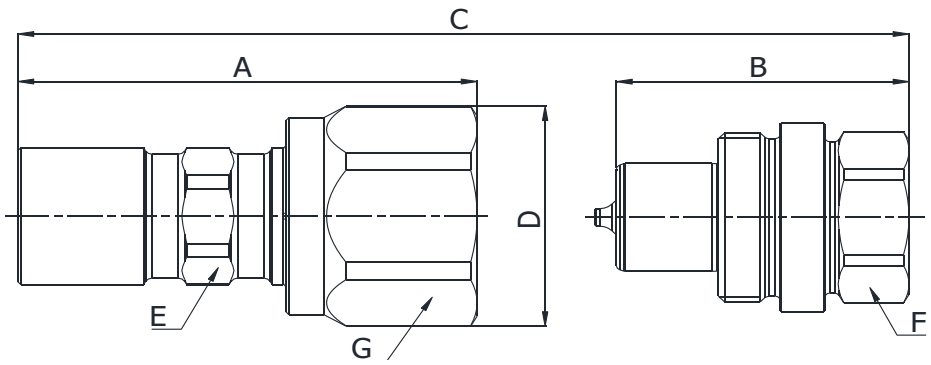
RECOMMENDED TIGHTENING TORQUES



Turn the hexagon on the female to apply the tightening torque

Hold the hexagon on the male with a wrench

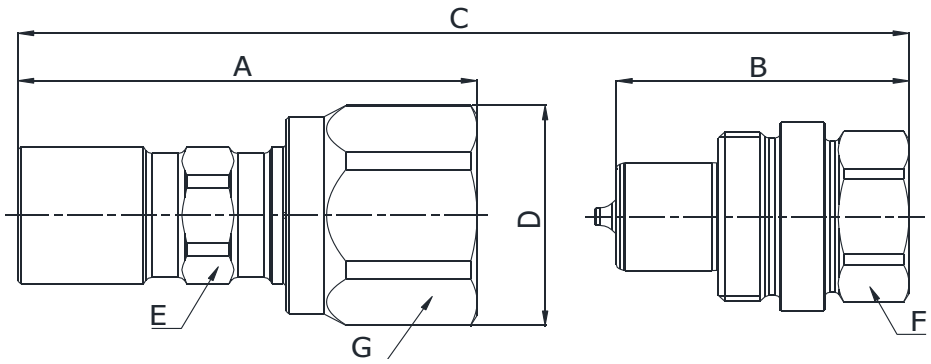
SIZE			TIGHTENING TORQUE
DN	Inch	Dash	Nm
6	1/4"	-04	50
10	3/8"	-06	70
12.5	1/2"	-08	100
19	**3/4"**	-12	150
25	1"	-16	250
31	1-1/4"	-20	400



Q05423041A
Q05323041A

BSP TERMINATION ENDS
TO DIN 3852 X TYPE

SIZE			PART NUMBER		THREAD	DIMENSIONS mm							
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F	G	
6.3	1/4"	-04	Q05423041A-04-04	Q05323041A-04-04	1/4"	63	42.2	A+B-20.4	ø35	19	22	32	
10	3/8"	-06	Q05423041A-06-06	Q05323041A-06-06	3/8"	72.5	46.2	A+B-25,9	ø38,5	22	27	35	
12.5	1/2"	-08	Q05423041A-08-08	Q05323041A-08-08	1/2"	82.1	54.4	A+B-27,3	ø45	27	32	41	
20	3/4"	-12	Q05423041A-12-12	Q05323041A-12-12	3/4"	93.7	61.4	A+B-31,9	ø55	35	41	50	
25	1"	-16	Q05423041A-16-16	Q05323041A-16-16	1"	105.8	68.3	A+B-37	ø66	41	50	60	
31.5	1.1/4"	-20	Q05423041A-20-20	Q05323041A-20-20	1.1/4"	131.9	82	A+B-53,9	ø88	55	70	80	



Q05423341A
Q05323341A

NPTF TERMINATION END
TO ANSI B 1.20.3

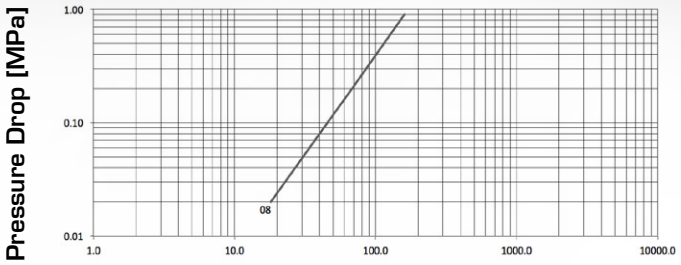
SIZE			PART NUMBER		THREAD	DIMENSIONS mm							
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F	G	
6.3	1/4"	-04	Q05423341A-04-04	Q05323341A-04-04	1/4" NPTF	63	42.2	A+B-20.4	ø35	19	22	32	
10	3/8"	-06	Q05423341A-06-06	Q05323341A-06-06	3/8" NPTF	72.5	46.2	A+B-25,9	ø38,5	22	27	35	
12.5	1/2"	-08	Q05423341A-08-08	Q05323341A-08-08	1/2" NPTF	82.1	54.4	A+B-27,3	ø45	27	32	41	
20	3/4"	-12	Q05423341A-12-12	Q05323341A-12-12	3/4" NPTF	93.7	61.4	A+B-31,9	ø55	35	41	50	
25	1"	-16	Q05423341A-16-16	Q05323341A-16-16	1" NPTF	105.8	68.3	A+B-37	ø66	41	50	60	
31.5	1.1/4"	-20	Q05423341A-20-20	Q05323341A-20-20	1.1/4" NPTF	131.9	82	A+B-53,9	ø88	55	70	80	

manuli® HYDRAULICS

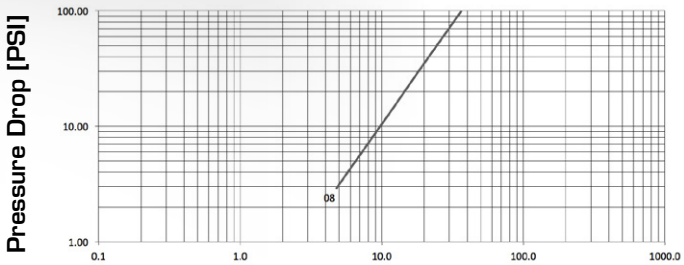


DHI TYPE
ISO A POPPET VALVE

Pressure Drop



Pressure Drop



TECHNICAL DATA

SIZE			WORKING PRESSURE (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		CONNECTION EFFORT		OIL SPILLAGE Connection/ Disconnection		MINIMUM BURST PRESSURE						CONNECTION/ DISCONNECTION UNDER PRESSURE
											Male		Female		M & F		
DN	inch	Dash	MPa	PSI	l/min	US GPM	N	lb.	cc.	cubic inch	MPa	PSI	MPa	PSI	MPa	PSI	
12.5	½	08	30	4350	68	18.0	80	18.0	1.8	0.110	125	18125	150	21750	150	21750	Not allowed

The rated flow represents the normal operating condition. The maximum recommended flow rate is equal to 1.5 times the rated flow

PRODUCT DESCRIPTION

- Dimensional and performance requirements conform to ISO 7241-1 series A, ensuring worldwide interchangeability
- Connect by pulling back the sleeve (with female ISO A)
- Positive connection by the locking ball system
- Shut-off poppet valve provides an effective hydraulic sealing
- When female bulkhead is mounted on the outside sleeve (PUSH-PULL), the coupling ensures breakaway features according to ISO 5675

MATERIAL

Female coupling in steel with some hardened areas, in correspondence to the most stressed points. Male couplings in high grade carbon steel. Carbonitrided valve and sleeve, springs in C98 steel, seals in NBR (other materials available on request) and back-up ring in PTFE

WORKING TEMPERATURE

-22ºF up to +230ºF (-30ºC up to +110ºC)
For other temperatures, the coupling may be assembled with the specific seals

SAFETY FACTOR

4:1 for dynamic pressures

IMPULSE PRESSURES

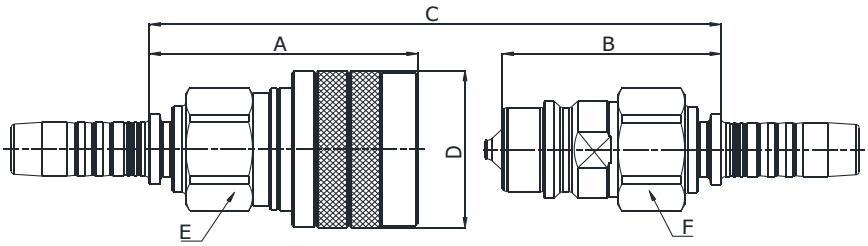
100,000 cycles at 133% of the rated one (freq. 1Hz)

TEST SPECIFICATIONS

ISO 18869

Quick release couplings DHI maintenance without flexible hose replacement

Q30811MF1A
Q30211MF1A



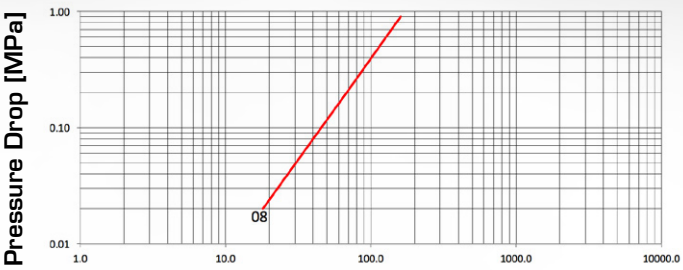
ISO A COUPLING
MULTIFIT INSERT

SIZE			PART NUMBER		HOSE BORE			DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling	DN	Inch	Dash	A	B	C	D	E	F
12.5	1/2"	-08	Q30811MF1A-08-04	Q30211MF1A-08-04	6	1/4"	-04	62.5	51.3	A+B-21,8	ø38	27	27
12.5	1/2"	-08	Q30811MF1A-08-05	Q30211MF1A-08-05	8	5/16"	-05	62.5	51.3	A+B-21,8	ø38	27	27
12.5	1/2"	-08	Q30811MF1A-08-06	Q30211MF1A-08-06	10	3/8"	-06	62	50.8	A+B-21,8	ø38	27	27
12.5	1/2"	-08	Q30811MF1A-08-08	Q30211MF1A-08-08	12	1/2"	-08	60.4	49.2	A+B-21,8	ø38	27	27

DHI TYPE
ISO A PUSH-PULL POPPET VALVE

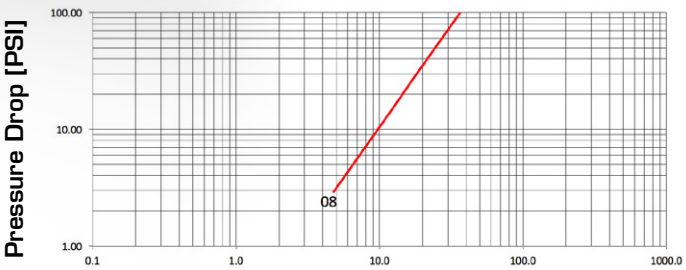


Pressure Drop



Flow Rate [l/min]

Pressure Drop



Flow Rate [US gallons/min]

TECHNICAL DATA

SIZE			WORKING PRESSURE (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		CONNECTION EFFORT		OIL SPILLAGE Connection/ Disconnection		MINIMUM BURST PRESSURE				CONNECTION/ DISCONNECTION UNDER PRESSURE
											Male		M & F		
DN	inch	Dash	MPa	PSI	l/min	US GPM	N	lb.	cc.	cubic inch	MPa	PSI	MPa	PSI	
12.5	½	08	30	4350	68	18.0	110	244	2	0.122	140	20300	140	20300	Not allowed

The rated flow represents the normal operating condition. The maximum recommended flow rate is equal to 1.5 times the rated flow

PRODUCT DESCRIPTION

- Female coupling designed for agriculture applications, connectable with ISO 7241-1 series A male couplings
- PUSH-PULL connection and disconnection system, in case of bulkhead mounting on the external sleeve
- Break-away function according to ISO 5675 (in case of bulkhead mounting on the external sleeve)
- Positive connection by latching balls system
- Shut-off by poppet valve
- High resistant materials
- Dimensions and performances according to ISO 7241-1 series A

MATERIAL

Female couplings in steel with some hardened areas, in correspondence to the most stressed points. Carbonitrided valve and sleeve, springs in C98 steel, latching balls in high resistance 100 C6 steel, seals in NBR (other materials on request) and back-up ring in PTFE

WORKING TEMPERATURE

-22ºF up to +230ºF (-30ºC up to +110ºC)
For other temperatures, the coupling is assembled with specific seals

SAFETY FACTOR

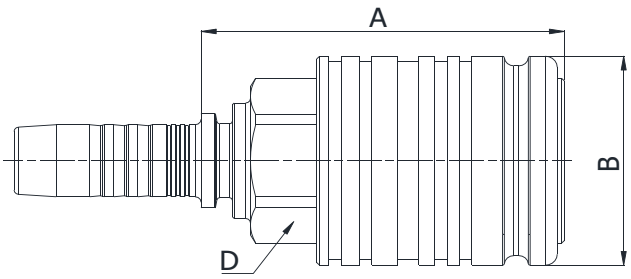
4:1 for dynamic pressures

IMPULSE PRESSURES

100,000 cycles at 133% of the rated one (freq. 1Hz)

TEST SPECIFICATIONS

ISO 18869

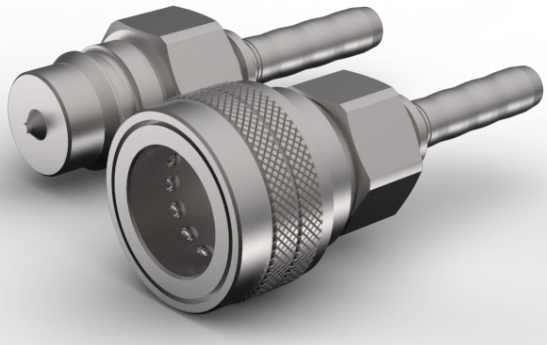


Q31311MF1A

FEMALE PUSH PULL COUPLING
MULTIFIT INSERT

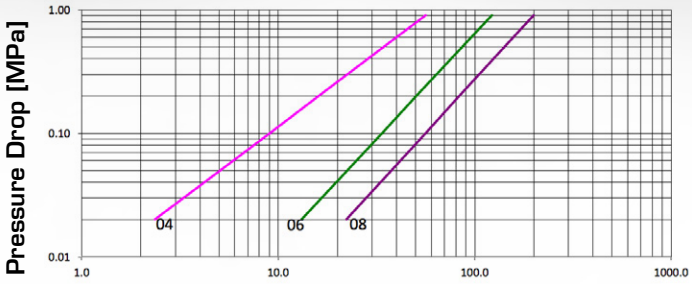
SIZE			PART NUMBER	HOSE BORE			DIMENSIONS mm					
DN	Inch	Dash	Female coupling	DN	Inch	Dash	A	B	D			
12.5	1/2"	-08	Q31311MF1A-08-04	6	1/4"	-04	62.5	ø38	27			
12.5	1/2"	-08	Q31311MF1A-08-05	8	5/16"	-05	62.5	ø38	27			
12.5	1/2"	-08	Q31311MF1A-08-06	10	3/8"	-06	62	ø38	27			
12.5	1/2"	-08	Q31311MF1A-08-08	12	1/2"	-08	60.4	ø38	27			

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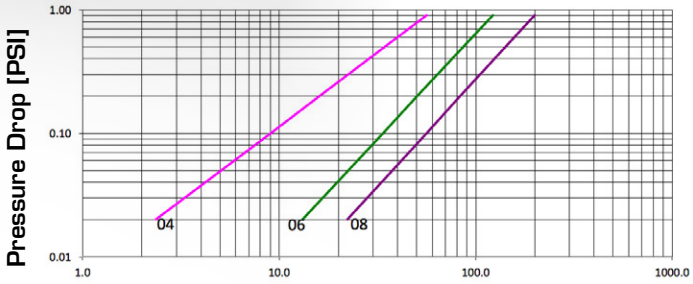


DHI TYPE
ISO B POPPET VALVE

Pressure Drop



Pressure Drop



TECHNICAL DATA

SIZE			WORKING PRESSURE (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		CONNECTION EFFORT		OIL SPILLAGE Connection/ Disconnection		MINIMUM BURST PRESSURE						CONNECTION/ DISCONNECTION UNDER PRESSURE
											Male		Female		M & F		
DN	inch	Dash	MPa	PSI	l/min	US GPM	N	lb.	cc.	cubic inch	MPa	PSI	MPa	PSI	MPa	PSI	
6.3	¼	04	40	5800	16	4.3	40	9.0	0.8	0.049	180	26100	190	27550	165	23925	Not allowed
10	⅜	06	35	5075	51	13.5	40	9.0	1.5	0.092	145	21025	160	23200	160	23200	Not allowed
12.5	½	08	35	5075	84	22.0	70	15.7	2.5	0.153	145	21025	145	21025	160	23200	Not allowed

The rated flow represents the normal operating condition. The maximum recommended flow rate is equal to 1.5 times the rated flow

PRODUCT DESCRIPTION

- Reference series for all industrial applications
- Simple connection and disconnection by pulling back the sleeve
- Positive, quick connection of the male into the female by latching the ball system
- Shut-off by poppet valve
- High resistant materials
- Interchangeable according to ISO 7241-1 series B

MATERIAL

Female couplings in steel, with some hardened areas, in correspondence to the most stressed points. Male couplings in high grade carbon steel hardened. Springs in C98 steel, seals in NBR (other materials on request) and back-up ring in PTFE

WORKING TEMPERATURE

-22°F up to +230°F (-30°C up to +110°C)
For other temperatures, the quick coupling is assembled with specific seals

SAFETY FACTOR

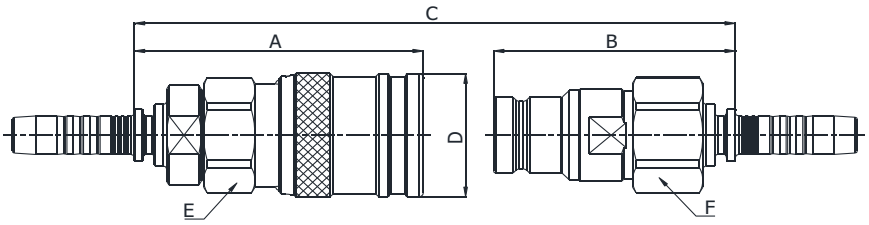
4:1 for dynamic pressures

IMPULSE PRESSURES

Withstands 100,000 cycles of impulse pressure at 133% of the rated one (freq. 1Hz)

TEST SPECIFICATIONS

ISO 18869

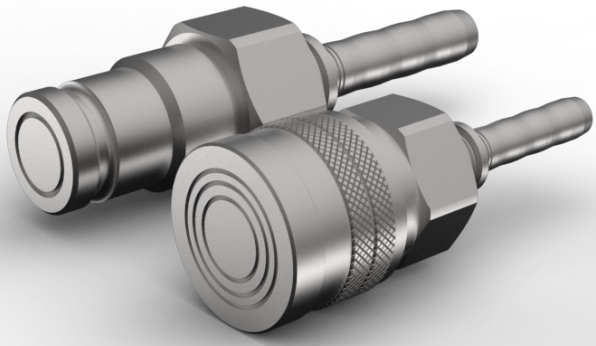


Q32411MF1A
Q32111MF1A

ISO B COUPLINGS
MULTIFIT INSERT

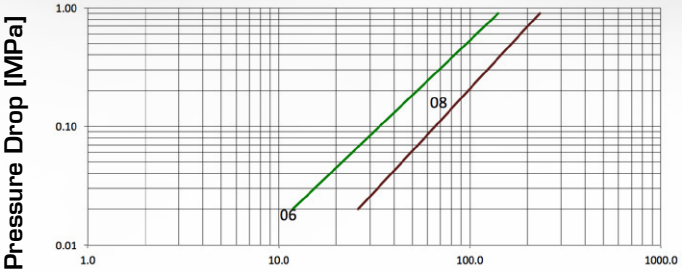
SIZE			PART NUMBER		HOSE BORE			DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling	DN	Inch	Dash	A	B	C	D	E	F
6.3	1/4"	-04	Q32411MF1A-04-06	Q32111MF1A-04-06	10	3/8"	-06	56	45.1	A+B-21,2	ø28	19	19
10	3/8"	-06	Q32411MF1A-06-06	Q32111MF1A-06-06	10	3/8"	-06	65.2	51.3	A+B-24,4	ø35	22	22
12.5	1/2"	-08	Q32411MF1A-08-08	Q32111MF1A-08-08	12	1/2"	-08	72	53.7	A+B-27,2	ø42	27	27
12.5	1/2"	-08	Q30811MF1A-08-08	Q30211MF1A-08-08	12	1/2"	-08	60.4	49.2	A+B-21,8	ø38	27	27

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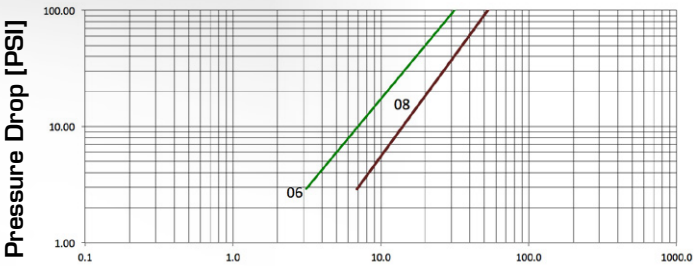
DHI TYPE
FLAT FACE

Pressure Drop



Flow Rate [l/min]

Pressure Drop



Flow Rate [US gallons/min]

TECHNICAL DATA

SIZE			WORKING PRESSURE CONNECTED (Dynamic)		WORKING PRESSURE DISCONNECTED (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		CONNECTION EFFORT		OIL SPILLAGE Connection/ Disconnection		MINIMUM BURST PRESSURE						CONNECTION WITH FEMALE UNDER PRESSURE (MALE AT 0 MPa)
													Male		Female		M & F		
DN	inch	Dash	MPa	PSI	MPa	PSI	l/min	US GPM	N	lb.	cc.	cubic inch	MPa	PSI	MPa	PSI	MPa	PSI	
10	⅜	06	35	5075	25	3625	54	14.3	130	29.2	0.007	0.0004	135	19575	125	18125	140	20300	Allowed up to 6 MPa
12.5	½	08	35	5075	25	3625	86	22.7	150	33.7	0.008	0.0005	120	17400	110	15950	145	21025	Allowed up to 4 MPa

Connection with Male under pressure not allowed; Disconnection under pressure not allowed
The rated flow represents the normal operating condition. The maximum recommended flow rate is equal to 1.5 times the rated flow

PRODUCT DESCRIPTION

- Connection is made by pushing the male coupling and disconnection by pulling back the sleeve of the female
- Flat mating surfaces easily wiped clean to prevent contamination and spillage during connection/disconnection
- Stainless steel springs in the female coupling
- Interchangeability according to ISO 16028 and HTMA standards

MATERIAL

Female and male coupling in steel, with some stressed tempered or carbonitrided areas. Springs in AISI and C98 steel, seals in polyurethane NBR. Other materials (VITON, EPDM or any others) on request.

WORKING TEMPERATURE

-22ºF up to +230ºF (-30ºC up to +110ºC)
For other temperatures the coupling is assembled with the specified seals

SAFETY FACTOR

4:1 for dynamic pressures

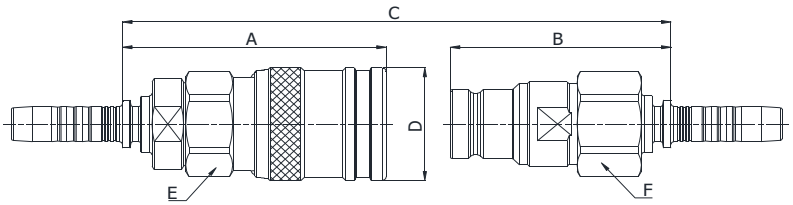
IMPULSE PRESSURES

100,000 cycles at 133% of the rated one (freq. 1Hz) in disconnected conditions.
1,000,000 cycles at 120% of rated one (freq. 1Hz) in connected conditions.

TEST SPECIFICATIONS

ISO 18869

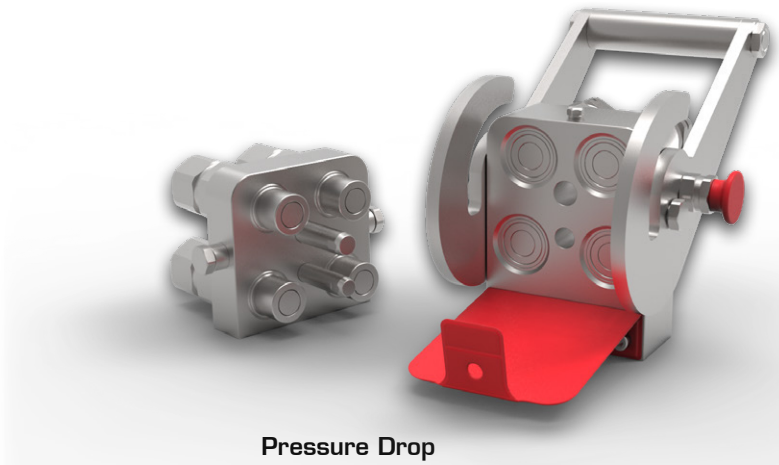
Q34111MF1A
Q33911MF1A



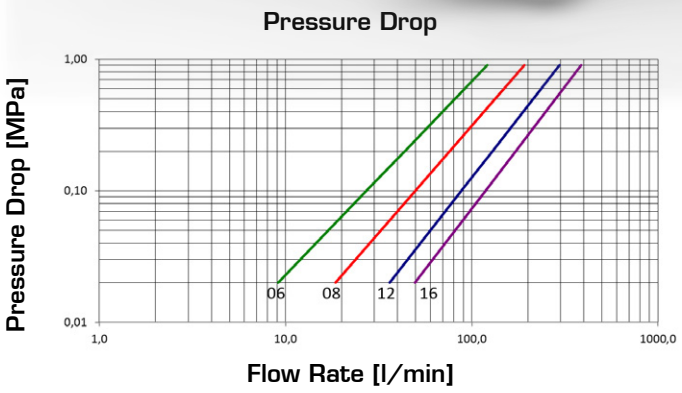
FLAT FACE COUPLING
MULTIFIT INSERT

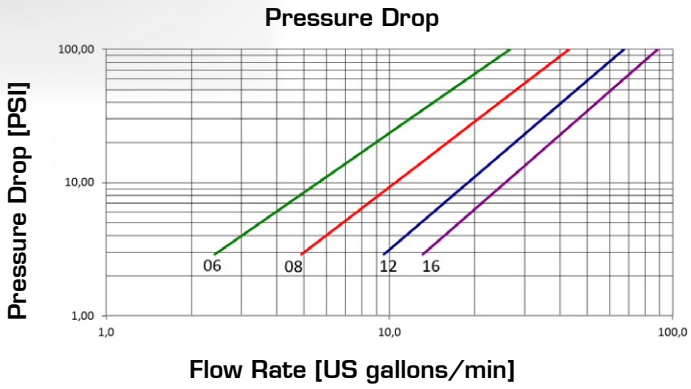
SIZE			PART NUMBER		HOSE BORE			DIMENSIONS mm					
DN	Inch	Dash	Female coupling	Male coupling	DN	Inch	Dash	A	B	C	D	E	F
10	3/8"	-06	Q34111MF1A-06-06	Q33911MF1A-06-06	10	3/8"	-06	69.7	58.3	A+B-15,9	ø32	27	27
10	3/8"	-06	Q34111MF1A-06-08	Q33911MF1A-06-08	12	1/2"	-08	69.6	56.7	A+B-15,9	ø32	27	27
12.5	1/2"	-08	Q34111MF1A-08-08	Q33911MF1A-08-08	12	1/2"	-08	78.9	66.7	A+B-17.1	ø38	34	34
12.5	1/2"	-08	Q34111MF1A-08-12	Q33911MF1A-08-12	19	3/4"	-12	75.8	65.1	A+B-17.1	ø38	34	34

manuli HYDRAULICS



FLAT FACE MULTI-CONNECTOR





TECHNICAL DATA

SIZE			WORKING PRESSURE CONNECTED (Dynamic)		WORKING PRESSURE DISCONNECTED (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		OIL SPILLAGE Connection/ Disconnection		MINIMUM BURST PRESSURE						CONNECTION/ DISCONNECTION UNDER PRESSURE
											Male		Female		M & F		
DN	inch	Dash	MPa	PSI	MPa	PSI	l/min	US GPM	cc.	cubic inch	MPa	PSI	MPa	PSI	MPa	PSI	
10	3/8"	06	35	5,075	35	5075	44	11.6	0.007	0.0004	170	24,650	140	20,300	180	26,100	Allowed
12.5	1/2"	08	35	5,075	35	5075	76	20.1	0.008	0.0005	170	24,650	140	20,300	180	26,100	Allowed
19	3/4"	12	35	5,075	35	5075	129	34.1	0.009	0.0005	140	20,300	140	20,300	160	23,200	Allowed
25	1"	16	35	5,075	35	5075	172	45.4	0.02	0.0012	160	23,200	150	21,750	160	23,200	Allowed

The rated flow represents the normal operating condition. The maximum recommended flow rate is equal to 1.5 times the rated flow

PRODUCT DESCRIPTION

- Flat mating surfaces easily wiped clean to prevent contamination and spillage during connection/disconnection
- Lever provides simultaneous connection / disconnection of couplings
- Positive, quick connection of the male into the female by the lever
- Shut-off by flat valve
- 1,000,000 cycles at 120% of rated (freq. 1Hz)

MATERIAL

Female and male coupling in steel, with springs in AISI and C98 steel, seals in polyurethane and NBR. Other materials (VITON, EPDM or any others) on request

WORKING TEMPERATURE

-22ºF up to +230ºF (-30ºC up to +110ºC)
For other temperatures the coupling is assembled with the specified seals

SAFETY FACTOR

4:1 for dynamic pressures

IMPULSE PRESSURES

1,000,000 cycles at 120% of rated one (freq. 1Hz) in connected and disconnected conditions.

TEST SPECIFICATIONS

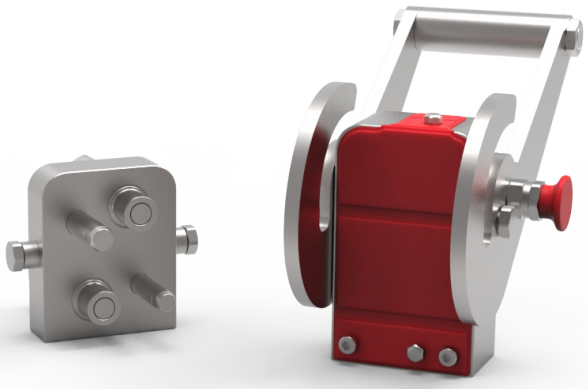
ISO 18869

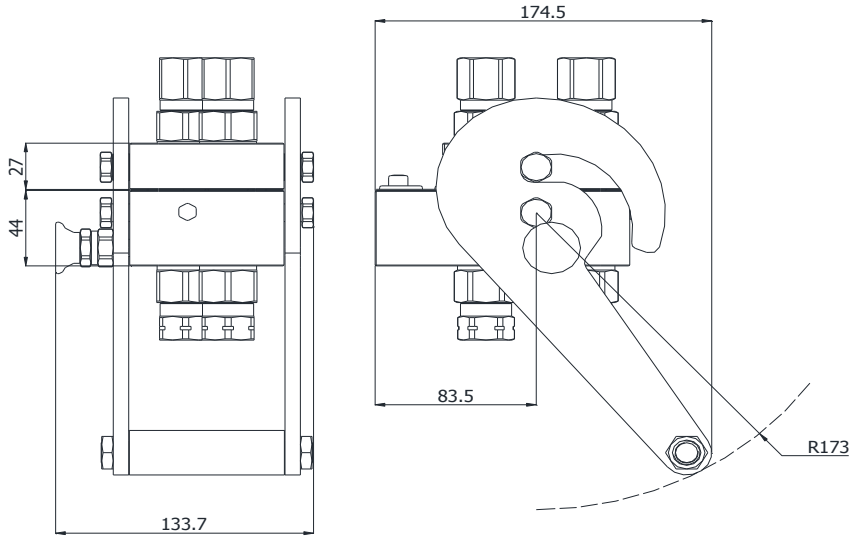
manuli® HYDRAULICS

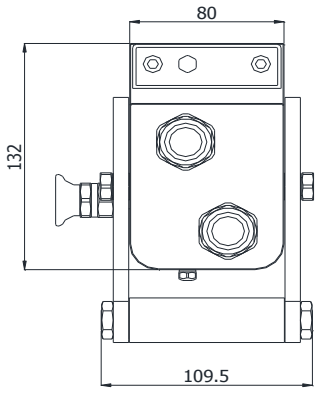
Q401 SERIES

2 LINE MULTI-COUPLING
DOUBLE-SIDED LEVER
LOCKING POSITION: LEFT*

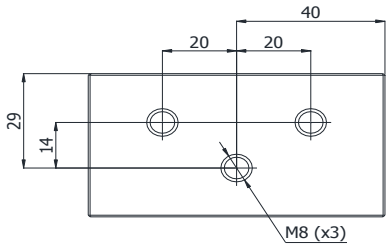
** Right hand locking available on request*
*** Plate adaptor for frontal fixing available*







FIXED PART INSTALLATION**

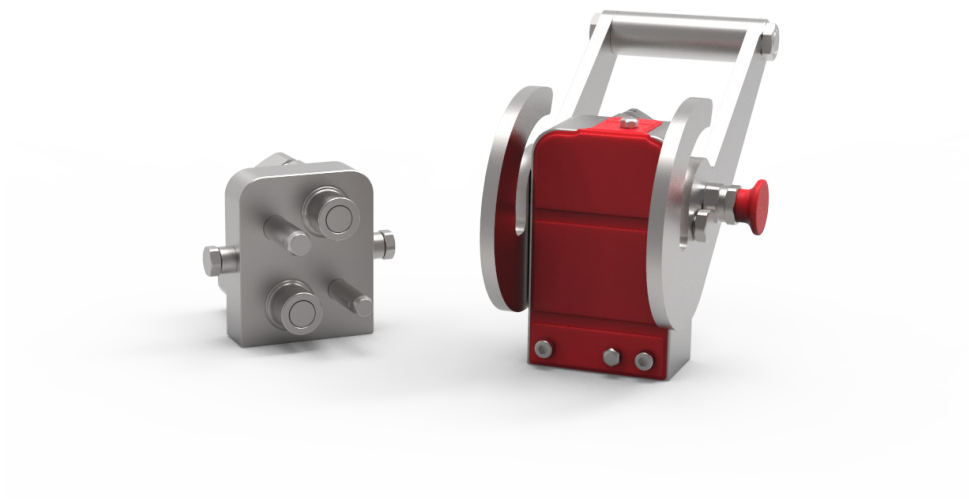


MULTI-COUPLING						TERMINATION END*	
PART NUMBER		SIZE			LINES	DESCRIPTION	THREAD
Fixed	Mobile	DN	Inch	Dash			
Q401B0F-041-06	Q401B0M-041-06	10	3/8"	-06	2	BSP FEMALE DIN3852-2 TYPE X	3/8" BSP
Q401B0F-041-08	Q401B0M-041-08	10	3/8"	-06	2	BSP FEMALE DIN3852-2 TYPE X	1/2" BSP

** Alternative termination ends can be provided - please ask your sales rep for details*

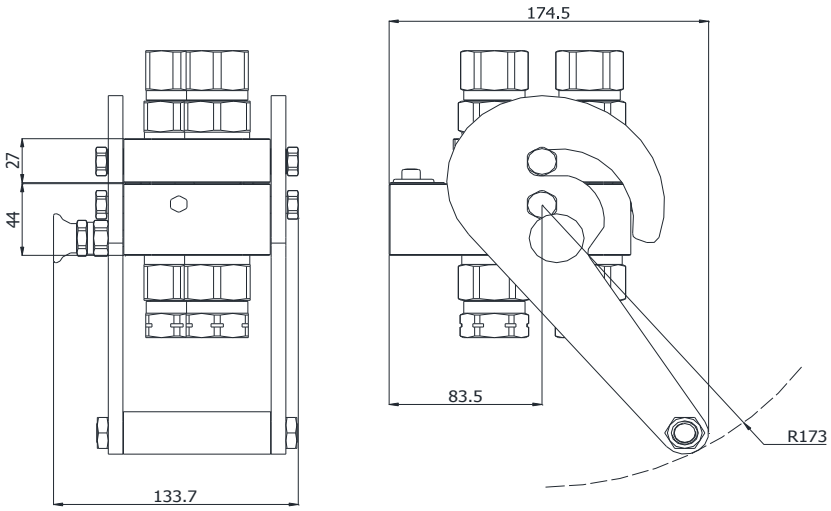
manuli® HYDRAULICS

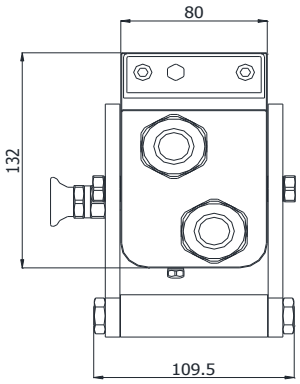
Q402 SERIES



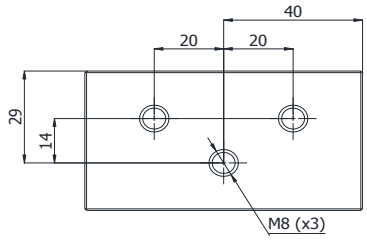
2 LINE MULTI-COUPLING
DOUBLE-SIDED LEVER
LOCKING POSITION: LEFT*

** Right hand locking available on request*
*** Plate adaptor for frontal fixing available*





FIXED PART INSTALLATION**

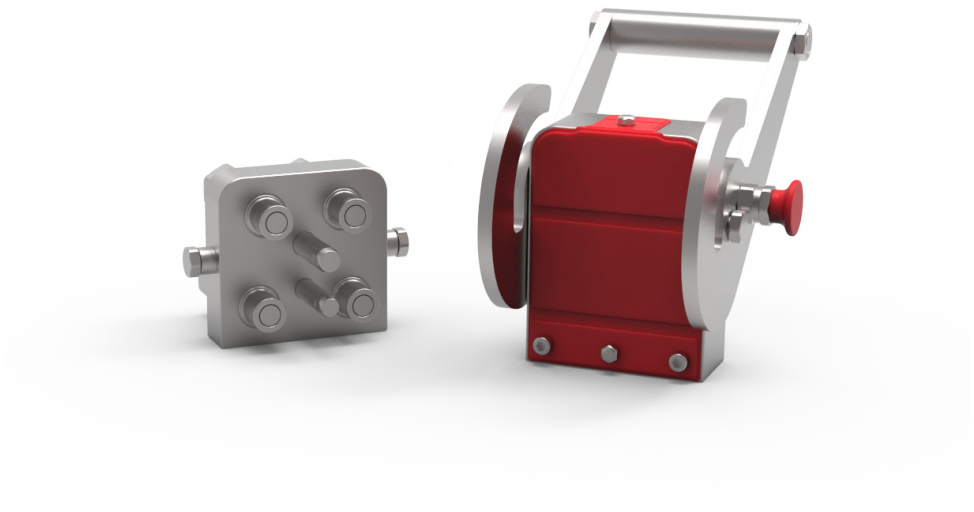


MULTI-COUPLING						TERMINATION END*	
PART NUMBER		SIZE			LINES	DESCRIPTION	THREAD
Fixed	Mobile	DN	Inch	Dash			
Q402B0F-041-08	Q402B0M-041-08	12.5	1/2"	-08	2	BSP FEMALE DIN3852-2 TYPE X	1/2" BSP
Q402B0F-041-12	Q402B0M-041-12	12.5	1/2"	-08	2	BSP FEMALE DIN3852-2 TYPE X	3/4" BSP

** Alternative termination ends can be provided - please ask your sales rep for details*

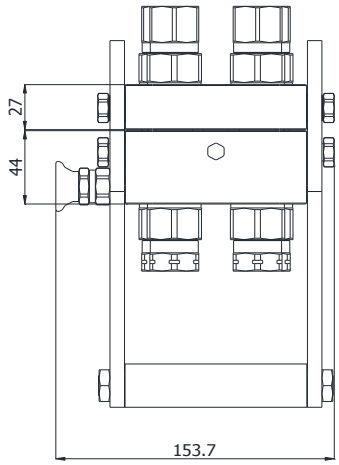
manuli® HYDRAULICS

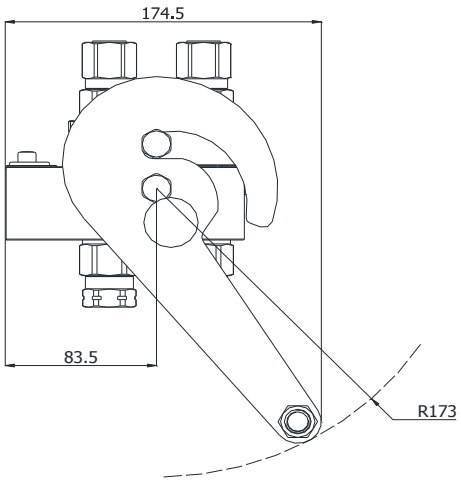
Q403 SERIES

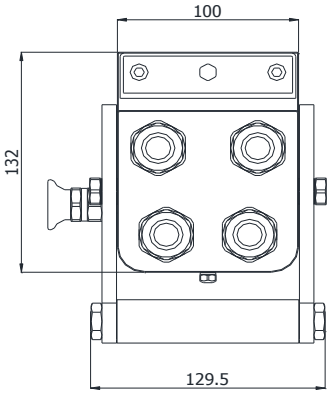


4 LINE MULTI-COUPLING
DOUBLE-SIDED LEVER
LOCKING POSITION: LEFT*

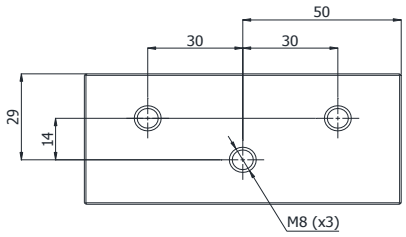
** Right hand locking available on request*
*** Plate adaptor for frontal fixing available*







FIXED PART INSTALLATION**

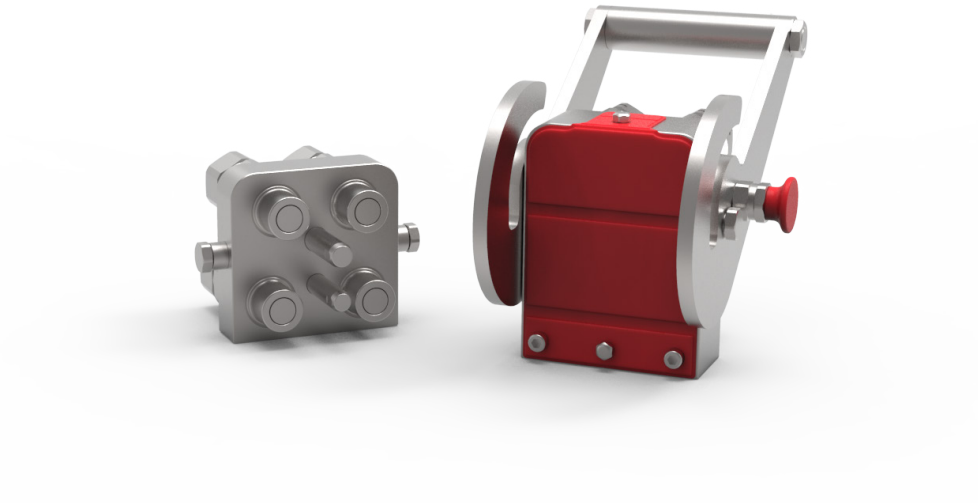


MULTI-COUPLING						TERMINATION END*	
PART NUMBER		SIZE			LINES	DESCRIPTION	THREAD
Fixed	Mobile	DN	Inch	Dash			
Q403D0F-041-06	Q403D0M-041-06	10	3/8"	-06	4	BSP FEMALE DIN3852-2 TYPE X	3/8" BSP
Q403D0F-120-20	Q403D0M-120-20	10	3/8"	-06	4	METRIC MALE ISO 8434-1 S SERIES	M20x1.5

** Alternative termination ends can be provided - please ask your sales rep for details*

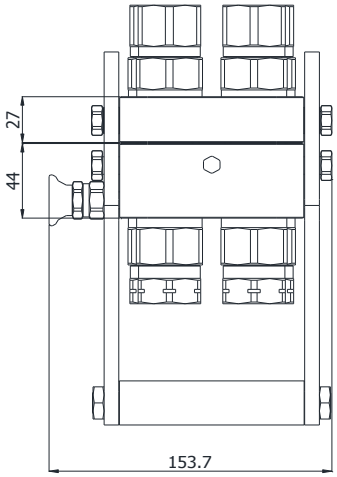
manuli® HYDRAULICS

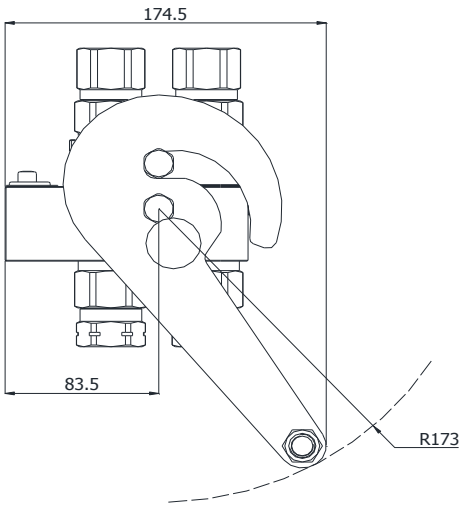
Q404 SERIES

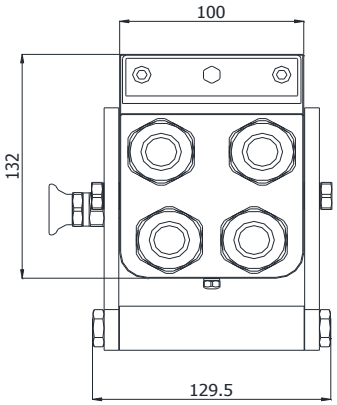


4 LINE MULTI-COUPLING
DOUBLE-SIDED LEVER
LOCKING POSITION: LEFT*

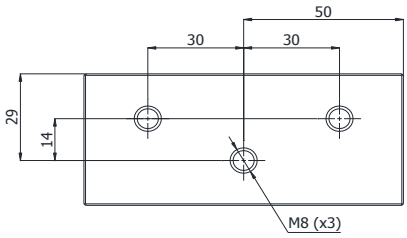
** Right hand locking available on request*
*** Plate adaptor for frontal fixing available*







FIXED PART INSTALLATION**



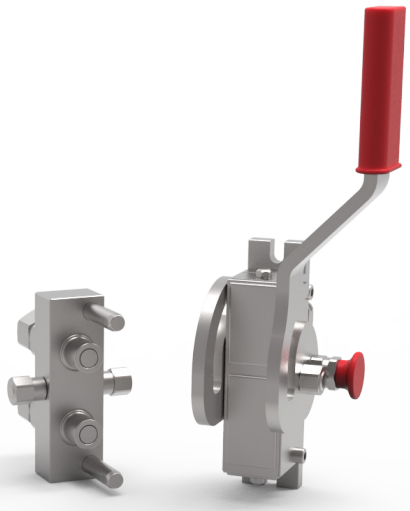
MULTI-COUPLING						TERMINATION END*	
PART NUMBER		SIZE			LINES	DESCRIPTION	THREAD
Fixed	Mobile	DN	Inch	Dash			
Q404D0F-041-08	Q404D0M-041-08	12.5	1/2"	-08	4	BSP FEMALE DIN3852-2 TYPE X	1/2" BSP
Q404C0F-AA	-	12.5	1/2"	-08	1	ORFS MALE ISO 8434-3	13/16"-16 UN
					2	ORFS MALE ISO 8434-3	1-3/16"-12 UN
-	Q404C0M-AA	12.5	1/2"	-08	1	BSP MALE ISO 8434-6	1/2" BSP
					2	BSP MALE ISO 8434-6	3/4" BSP

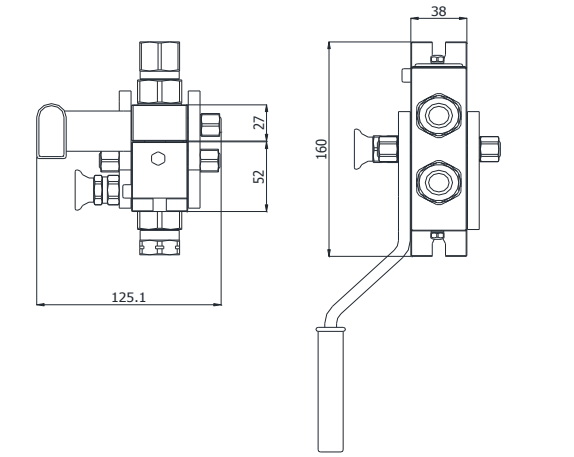
** Alternative termination ends can be provided - please ask your sales rep for details*

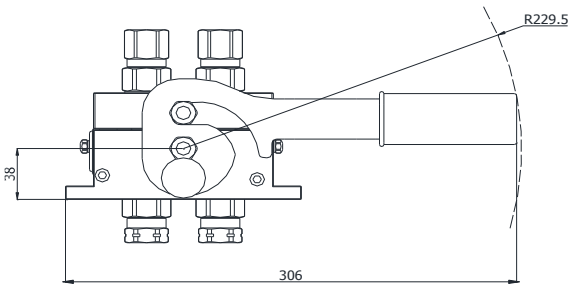
manuli® HYDRAULICS

Q405 SERIES

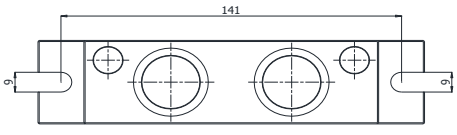
2 LINE MULTI-COUPLING
SINGLE-SIDED LEVER
LOCKING POSITION: LEFT





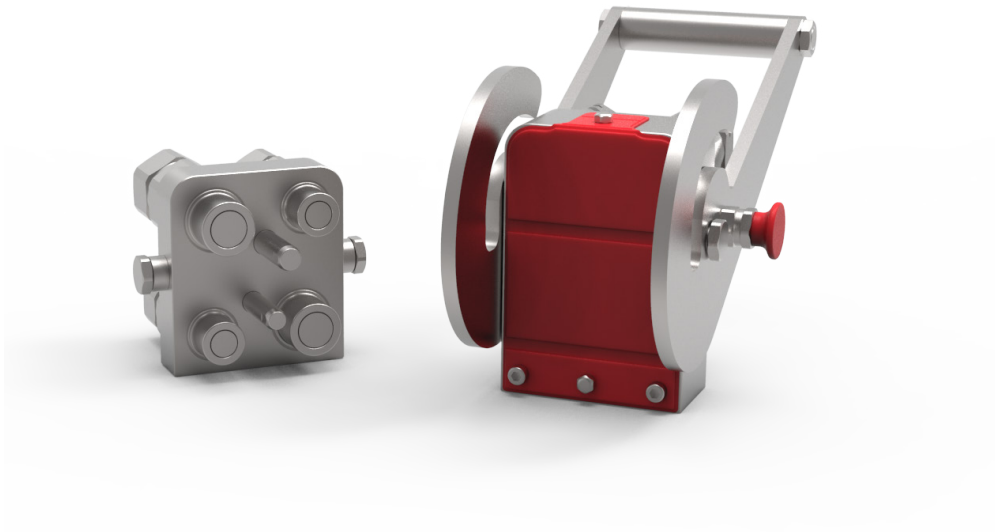


FIXED PART INSTALLATION**



MULTI-COUPLING						TERMINATION END*	
PART NUMBER		SIZE			LINES	DESCRIPTION	THREAD
Fixed	Mobile	DN	Inch	Dash			
Q405B0F-041-06	Q405B0M-041-06	10	3/8"	-06	2	BSP FEMALE DIN3852-2 TYPE X	3/8" BSP

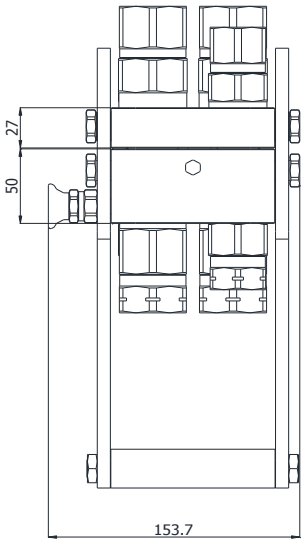
** Alternative termination ends can be provided - please ask your sales rep for details*

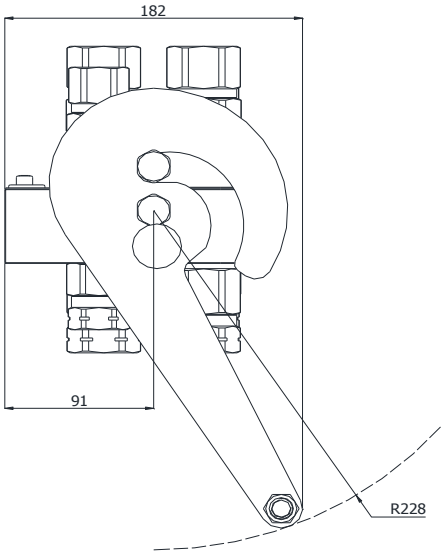


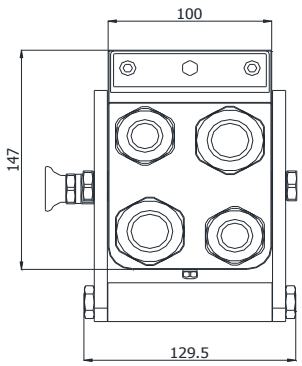
Q406 SERIES

2+2 LINE MULTI-COUPLING
DOUBLE-SIDED LEVER
LOCKING POSITION: LEFT*

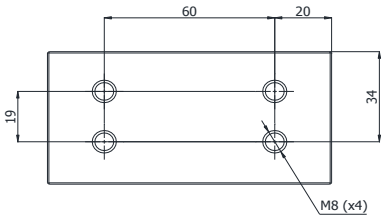
** Right hand locking available on request*
*** Plate adaptor for frontal fixing available*







FIXED PART INSTALLATION**



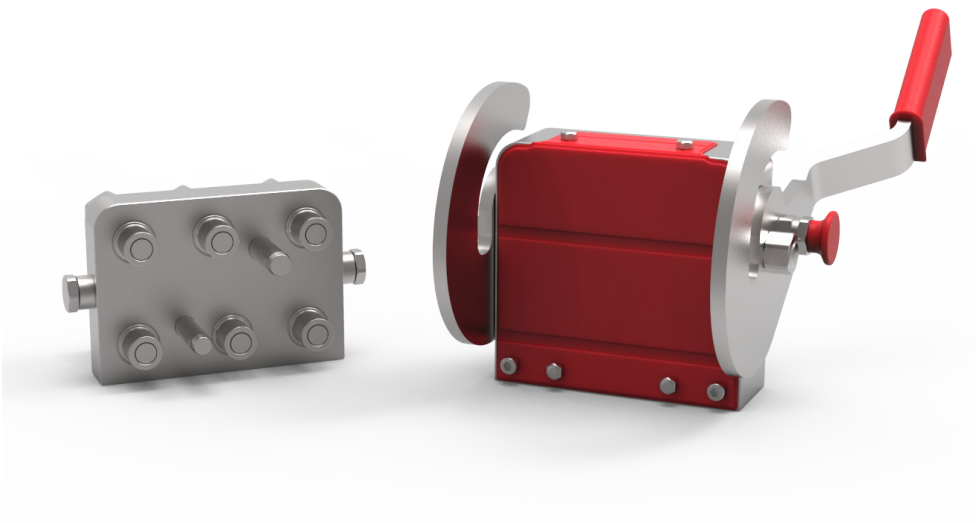
MULTI-COUPLING						TERMINATION END*	
PART NUMBER		SIZE			LINES	DESCRIPTION	THREAD
Fixed	Mobile	DN	Inch	Dash			
Q406D0F-AA	Q406D0M-AA	12.5	1/2"	-08	2	BSP FEMALE DIN3852-2 TYPE X	1/2" BSP
		19	3/4"	-12	2	BSP FEMALE DIN3852-2 TYPE X	3/4" BSP

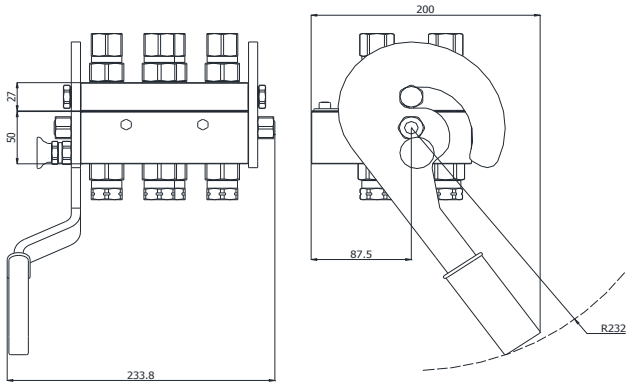
** Alternative termination ends can be provided - please ask your sales rep for details*

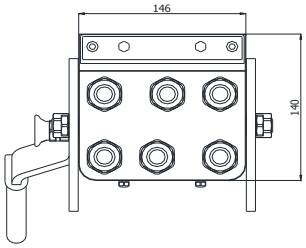
Q407 SERIES

6 LINE MULTI-COUPLING
SINGLE-SIDED LEVER
LOCKING POSITION: LEFT*

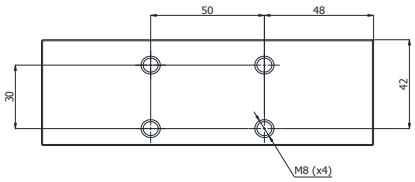
** Right hand locking available on request*







FIXED PART INSTALLATION**



MULTI-COUPLING						TERMINATION END*	
PART NUMBER		SIZE			LINES	DESCRIPTION	THREAD
Fixed	Mobile	DN	Inch	Dash			
Q407F0F-041-06	Q407F0M-041-06	10	3/8"	-06	6	BSP FEMALE DIN3852-2 TYPE X	3/8" BSP
Q407E0F-041-06AA	Q407E0M-041-06AA	10	3/8"	-06	5	BSP FEMALE DIN3852-2 TYPE X	3/8" BSP

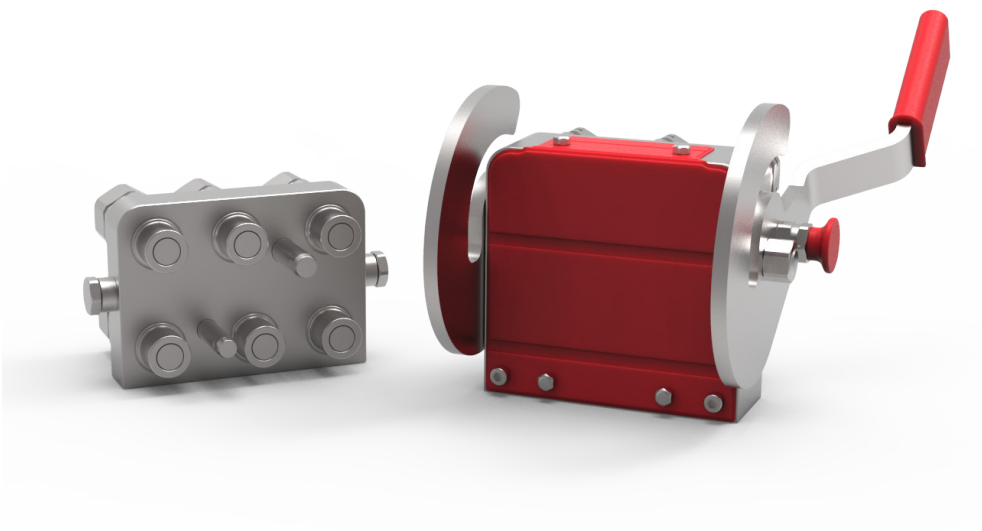
** Alternative termination ends can be provided - please ask your sales rep for details*

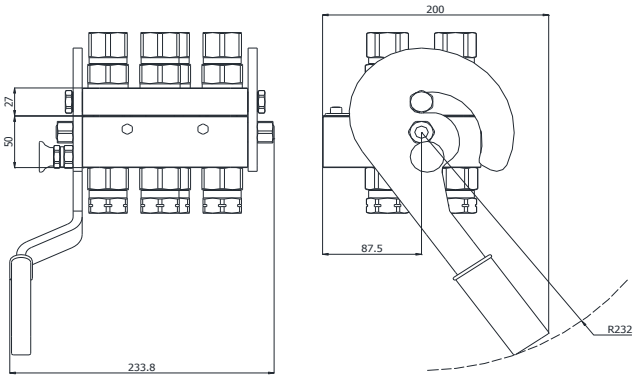
manuli® HYDRAULICS

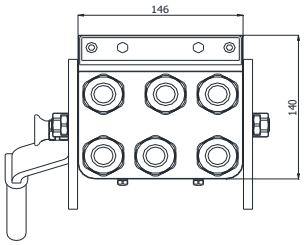
Q408 SERIES

6 LINE MULTI-COUPLING
SINGLE-SIDED LEVER
LOCKING POSITION: LEFT*

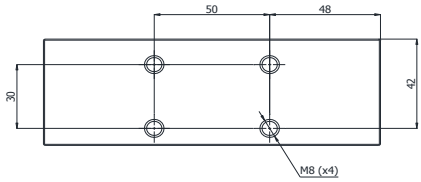
** Right hand locking available on request*







FIXED PART INSTALLATION**

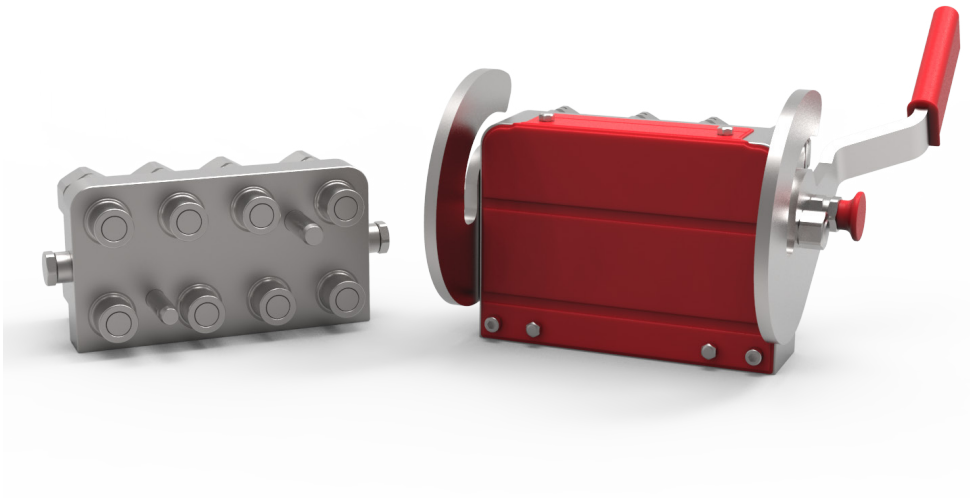


MULTI-COUPLING						TERMINATION END*	
PART NUMBER		SIZE			LINES	DESCRIPTION	THREAD
Fixed	Mobile	DN	Inch	Dash			
Q408F0F-041-08	Q408F0M-041-08	12.5	1/2"	-08	6	BSP FEMALE DIN3852-2 TYPE X	1/2" BSP

** Alternative termination ends can be provided - please ask your sales rep for details*

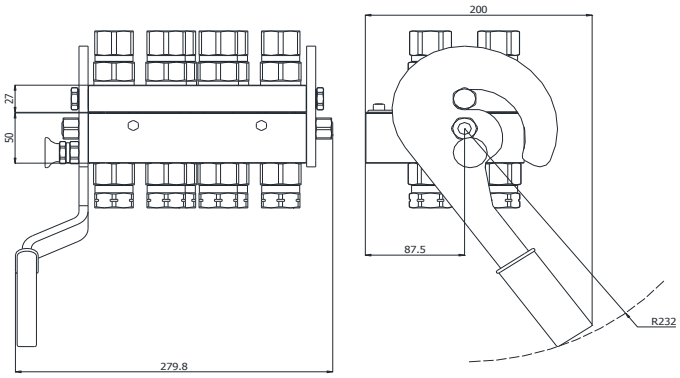
manuli® HYDRAULICS

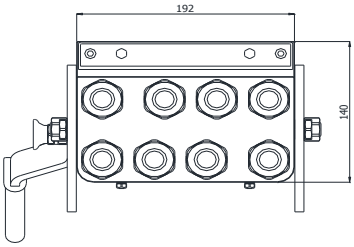
Q409 SERIES



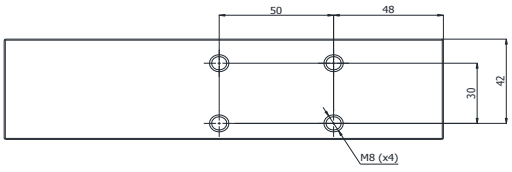
8 LINE MULTI-COUPLING
SINGLE-SIDED LEVER
LOCKING POSITION: LEFT*

** Right hand locking available on request*





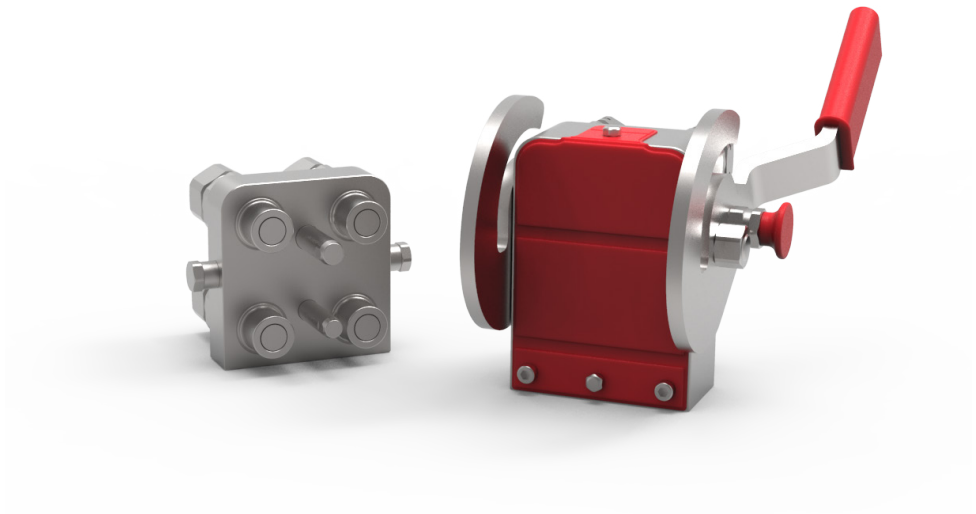
FIXED PART INSTALLATION**



MULTI-COUPLING						TERMINATION END*	
PART NUMBER		SIZE			LINES	DESCRIPTION	THREAD
Fixed	Mobile	DN	Inch	Dash			
Q409H0F-041-08	Q409H0M-041-08	12.5	1/2"	-08	8	BSP FEMALE DIN3852-2 TYPE X	1/2" BSP

** Alternative termination ends can be provided - please ask your sales rep for details*

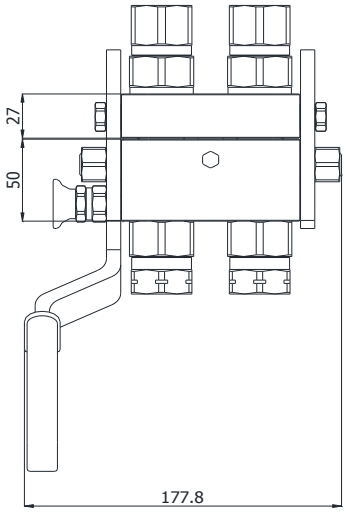
manuli® HYDRAULICS

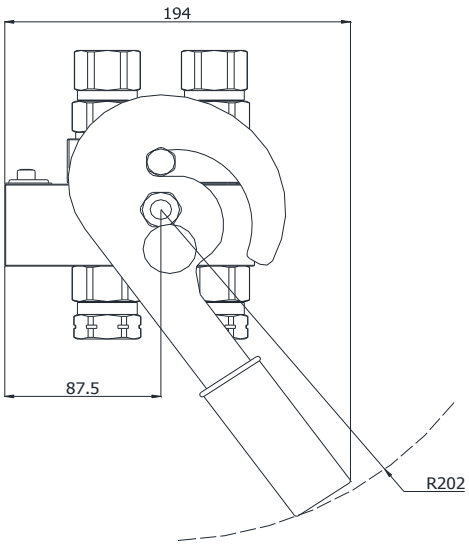


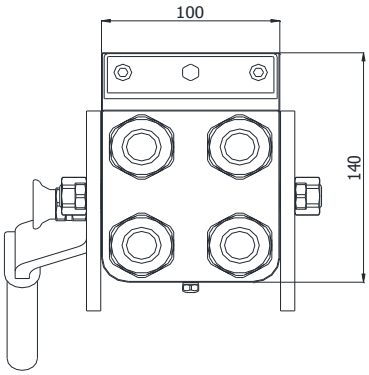
Q410 SERIES

4 LINE MULTI-COUPLING
SINGLE-SIDED LEVER
LOCKING POSITION: LEFT*

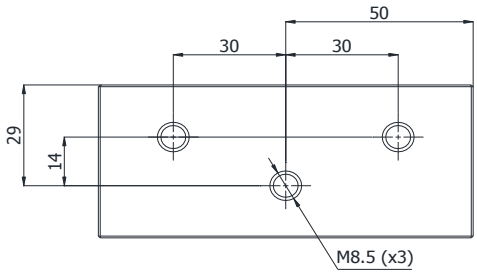
** Right hand locking available on request*
*** Plate adaptor for frontal fixing available*







FIXED PART INSTALLATION**



MULTI-COUPLING						TERMINATION END*	
PART NUMBER		SIZE			LINES	DESCRIPTION	THREAD
Fixed	Mobile	DN	Inch	Dash			
Q410D0F-041-08	Q410D0M-041-08	12.5	1/2"	-08	4	BSP FEMALE DIN3852-2 TYPE X	1/2" BSP
Q410C0F-041-08AA	Q410C0M-041-08AA	12.5	1/2"	-08	3	BSP FEMALE DIN3852-2 TYPE X	1/2" BSP

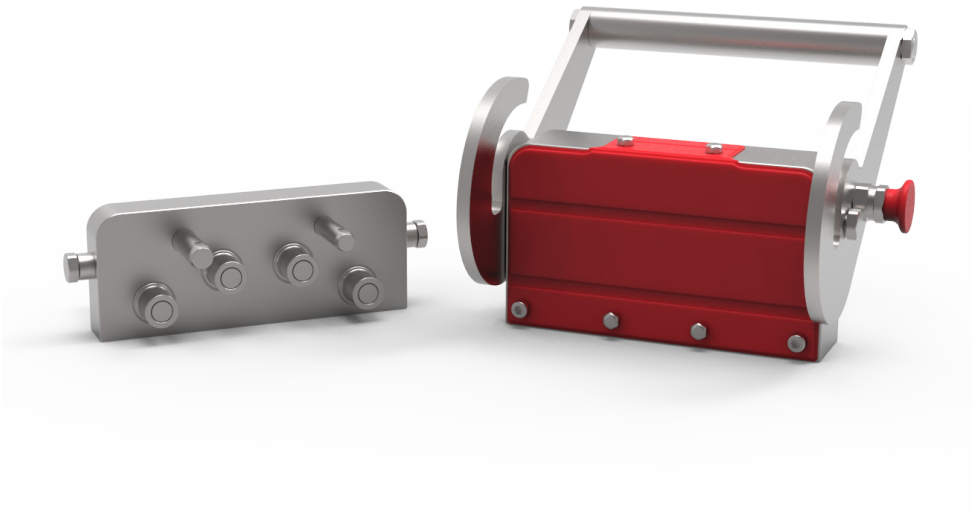
** Alternative termination ends can be provided - please ask your sales rep for details*

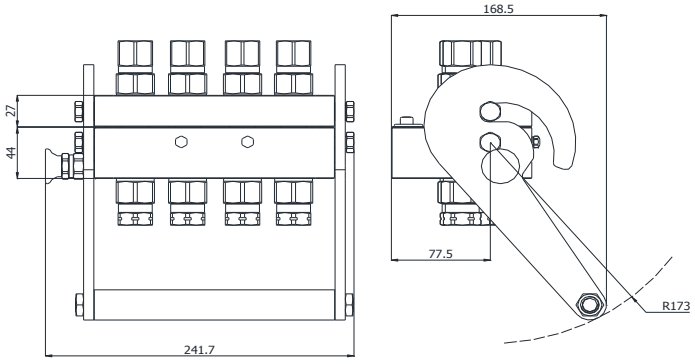
manuli® HYDRAULICS

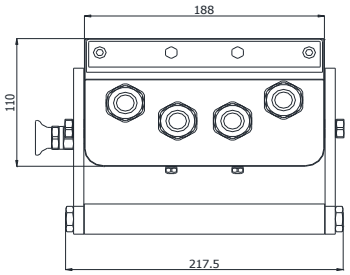
Q411 SERIES

4 LINE MULTI-COUPLING
DOUBLE-SIDED LEVER
LOCKING POSITION: LEFT*

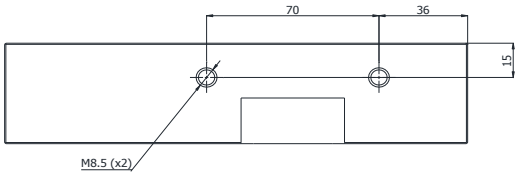
** Right hand locking available on request*





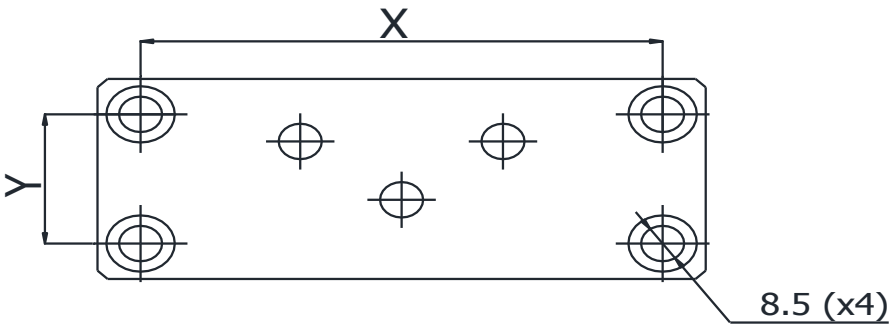


FIXED PART INSTALLATION**



MULTI-COUPLING						TERMINATION END*	
PART NUMBER		SIZE			LINES	DESCRIPTION	THREAD
Fixed	Mobile	DN	Inch	Dash			
Q411D0F-041-06	Q411D0M-041-06	10	3/8"	-06	4	BSP FEMALE DIN3852-2 TYPE X	3/8" BSP

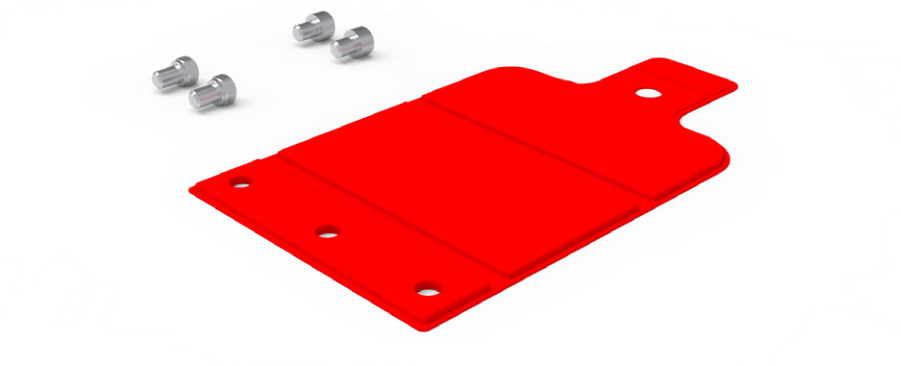
** Alternative termination ends can be provided - please ask your sales rep for details*



Q1AZ50BN

PLATE ADAPTOR FOR MULTICONNECTOR

MULTICOUPLING SERIES	PART NUMBER	MATERIAL	DIMENSIONS mm	
			X	Y
Q401	Q1AZ50BN-01	ALUMINIUM	103	31
Q402	Q1AZ50BN-02	ALUMINIUM	103	31
Q403	Q1AZ50BN-03	ALUMINIUM	115	31
Q404	Q1AZ50BN-04	ALUMINIUM	115	31
Q406	Q1AZ50BN-06	ALUMINIUM	115	40
Q410	Q1AZ50BN-10	ALUMINIUM	115	31

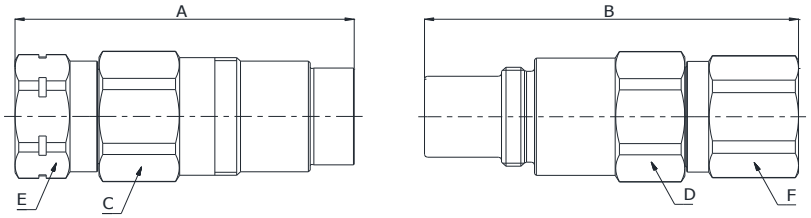


Q1AZ19FR

COVER FOR MULTICONNECTOR

MULTICOUPLING SERIES	PART NUMBER	MATERIAL	COLOUR
Q401	Q1AZ19FR-01	STEEL+PU	RED
Q402	Q1AZ19FR-02	STEEL+PU	RED
Q403	Q1AZ19FR-03	STEEL+PU	RED
Q404	Q1AZ19FR-04	STEEL+PU	RED
Q405	Q1AZ19FR-05	STEEL+PU	RED
Q406	Q1AZ19FR-06	STEEL+PU	RED
Q407	Q1AZ19FR-07	STEEL+PU	RED
Q408	Q1AZ19FR-08	STEEL+PU	RED
Q409	Q1AZ19FR-09	STEEL+PU	RED
Q410	Q1AZ19FR-10	STEEL+PU	RED
Q411	Q1AZ19FR-11	STEEL+PU	RED

Q06811041A
Q06911041A



BSP TERMINATION ENDS
TO DIN 3852 X TYPE

SIZE			PART NUMBER		THREAD	DIMENSIONS mm						
DN	Inch	Dash	Female coupling	Male coupling		A	B	C	D	E	F	
10	3/8"	-06	Q06911041A-06-06	Q06811041A-06-06	3/8"	82.3	93.7	30	30	27	27	
10	3/8"	-06	Q06911041A-06-08	Q06811041A-06-08	1/2"	85.3	96.5	30	30	27	27	
12.5	1/2"	-08	Q06911041A-08-08	Q06811041A-08-08	1/2"	92.5	102	36	36	34	34	
12.5	1/2"	-08	Q06911041A-08-12	Q06811041A-08-12	3/4"	94.5	105	36	36	34	34	
20	3/4"	-12	Q06911041A-12-12	Q06811041A-12-12	3/4"	108	118.7	41	42	41	41	
25	1"	-16	Q06911041A-16-16	Q06811041A-16-16	1"	119.4	126.3	50	50	50	50	



Q1A0114

PARKING FOR MQS-A MALE
BULKHEAD MOUNTING

SIZE			PART NUMBER	MATERIAL	COLOUR
DN	Inch	Dash	Parking		
12.5	1/2"	-08	Q1A0114N-08	STEEL	-



Q1A0114-B

PARKING FOR MQS-A MALE

SIZE			PART NUMBER	MATERIAL	COLOUR
DN	Inch	Dash	Parking		
12.5	1/2"	-08	Q1A0114N-08B	STEEL	-



Q1A0104

PARKING FOR MQS-A MALE

SIZE			PART NUMBER	MATERIAL	COLOUR
DN	Inch	Dash	Parking		
12.5	1/2"	-08	Q1A0104N-08	STEEL	-



Q1A0114-T

PARKING WITH CAP FOR MQS-A MALE
BULKHEAD MOUNTING

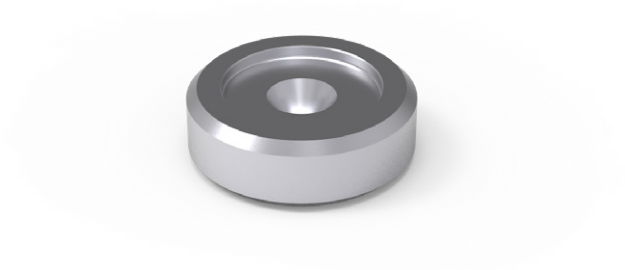
SIZE			PART NUMBER	MATERIAL	COLOUR
DN	Inch	Dash	Parking		
12.5	1/2"	-08	Q1A0114K-08T	STEEL + POM	BLACK



Q1AF104

PARKING FOR MQS-VB
(BREAKING VALVES)

SIZE			PART NUMBER	MATERIAL	COLOUR
DN	Inch	Dash	Parking		
12.5	1/2"	-08	Q1AF104N-08	STEEL	-



Q1AH104

PARKING FOR MQS-VS
(AGRICULTURAL VALVES)

SIZE			PART NUMBER	MATERIAL	COLOUR
DN	Inch	Dash	Parking		
12.5	1/2"	-08	Q1AH104N-08	STEEL	-



Q1AP104

PARKING FOR MQS-ST
(SCREW TYPE MALE FOR TRUCK)

SIZE			PART NUMBER	MATERIAL	COLOUR
DN	Inch	Dash	Parking		
20	3/4"	-12	Q1AP104N-12	STEEL	-
25	1"	-16	Q1AP104N-16	STEEL	-



Q1A0B00
Q1A1B00

PLUGS AND CAPS
FOR MQS-A (ISO A)

SIZE			PART NUMBER		MATERIAL	COLOUR
DN	Inch	Dash	Plug for Female coupling	Cap for Male coupling		
6.3	1/4"	-04	Q1A1B00R-04	Q1A0B00R-04	PVC	RED
6.3	1/4"	-04	Q1A1B00Y-04	Q1A0B00Y-04	PVC	YELLOW
10	3/8"	-06	Q1A1B00R-06	Q1A0B00R-06	PVC	RED
10	3/8"	-06	Q1A1B00Y-06	Q1A0B00Y-06	PVC	YELLOW
10	3/8"	-06	Q1A1B00K-06	Q1A0B00K-06	PVC	BLACK
12.5	1/2"	-08	Q1A1B00R-08	Q1A0B00R-08	PVC	RED
12.5	1/2"	-08	Q1A1B00B-08	Q1A0B00B-08	PVC	BLUE
12.5	1/2"	-08	Q1A1B00G-08	Q1A0B00G-08	PVC	GREEN
12.5	1/2"	-08	Q1A1B00Y-08	Q1A0B00Y-08	PVC	YELLOW
12.5	1/2"	-08	Q1A1B00K-08	Q1A0B00K-08	PVC	BLACK
12.5	1/2"	-08	Q1A1B00H-08	Q1A0B00H-08	PVC	WHITE
20	3/4"	-12	Q1A1B00R-12	Q1A0B00R-12	PVC	RED
20	3/4"	-12	Q1A1B00Y-12	Q1A0B00Y-12	PVC	YELLOW
25	1"	-16	Q1A1B00R-16	Q1A0B00R-16	PVC	RED
25	1"	-16	Q1A1B00Y-16	Q1A0B00Y-16	PVC	YELLOW



Q1A0B00
Q1A1B00

PLUGS AND CAPS FOR MQS-AP (ISO A CONNECTABLE UNDER PRESSURE)

SIZE			PART NUMBER		MATERIAL	COLOUR
DN	Inch	Dash	Plug for Female coupling	Cap for Male coupling		
12.5	1/2"	-08	Q1A1B00R-08	Q1A0B00R-08	PVC	RED
12.5	1/2"	-08	Q1A1B00B-08	Q1A0B00B-08	PVC	BLUE
12.5	1/2"	-08	Q1A1B00G-08	Q1A0B00G-08	PVC	GREEN
12.5	1/2"	-08	Q1A1B00Y-08	Q1A0B00Y-08	PVC	YELLOW
12.5	1/2"	-08	Q1A1B00K-08	Q1A0B00K-08	PVC	BLACK
12.5	1/2"	-08	Q1A1B00H-08	Q1A0B00H-08	PVC	WHITE



Q1A1B00

PLUGS FOR MQS-AF (ISO A PUSH-PULL)

SIZE			PART NUMBER		MATERIAL	COLOUR
DN	Inch	Dash	Plug for Female coupling	Cap for Male coupling		
6.3	1/4"	-04	Q1A1B00R-04	-	PVC	RED
6.3	1/4"	-04	Q1A1B00Y-04	-	PVC	YELLOW
10	3/8"	-06	Q1A1B00R-06	-	PVC	RED
10	3/8"	-06	Q1A1B00Y-06	-	PVC	YELLOW
10	3/8"	-06	Q1A1B00K-06	-	PVC	BLACK
12.5	1/2"	-08	Q1A1B00R-08	-	PVC	RED
12.5	1/2"	-08	Q1A1B00B-08	-	PVC	BLUE
12.5	1/2"	-08	Q1A1B00G-08	-	PVC	GREEN
12.5	1/2"	-08	Q1A1B00Y-08	-	PVC	YELLOW
12.5	1/2"	-08	Q1A1B00K-08	-	PVC	BLACK
12.5	1/2"	-08	Q1A1B00H-08	-	PVC	WHITE
20	3/4"	-12	Q1A1B00R-12	-	PVC	RED
20	3/4"	-12	Q1A1B00Y-12	-	PVC	YELLOW
25	1"	-16	Q1A1B00R-16	-	PVC	RED
25	1"	-16	Q1A1B00Y-16	-	PVC	YELLOW



Q1A1B00

PLUGS FOR MQS-AM & MQS-AB (ISO A), MQS-AFP, MQS-AFM, MQS-AFB, MQS-ARM & MQS-ARB (ISO A PUSH-PULL)

SIZE			PART NUMBER		MATERIAL	COLOUR
DN	Inch	Dash	Plug for Female coupling	Cap for Male coupling		
12.5	1/2"	-08	Q1A1B00R-08	-	PVC	RED
12.5	1/2"	-08	Q1A1B00B-08	-	PVC	BLUE
12.5	1/2"	-08	Q1A1B00G-08	-	PVC	GREEN
12.5	1/2"	-08	Q1A1B00Y-08	-	PVC	YELLOW
12.5	1/2"	-08	Q1A1B00K-08	-	PVC	BLACK
12.5	1/2"	-08	Q1A1B00H-08	-	PVC	WHITE



Q1A5B00
Q1A4B00

PLUGS AND CAPS FOR MQS-N (STANDARD) SERIES

SIZE			PART NUMBER		MATERIAL	COLOUR
DN	Inch	Dash	Plug for Female coupling	Cap for Male coupling		
6.3	1/4"	-04	Q1A5B00R-04	Q1A4B00R-04	PVC	RED
6.3	1/4"	-04	Q1A5B00B-04	Q1A4B00B-04	PVC	BLUE
6.3	1/4"	-04	Q1A5B00G-04	Q1A4B00G-04	PVC	GREEN
10	3/8"	-06	Q1A5B00R-06	Q1A4B00R-06	PVC	RED
10	3/8"	-06	Q1A5B00B-06	Q1A4B00B-06	PVC	BLUE
12.5	1/2"	-08	SEE PLUGS AND CAPS FOR ISO SERIES A			
20	3/4"	-12	Q1A5B00R-12	Q1A4B00R-12	PVC	RED
20	3/4"	-12	Q1A5B00B-12	Q1A4B00B-12	PVC	BLUE
20	3/4"	-12	Q1A5B00Y-12	Q1A4B00Y-12	PVC	YELLOW



Q1A9B00
Q1A8B00

PLUGS AND CAPS FOR MQS-F (FLAT-FACE) & MQS-FH (FLAT-FACE HIGH PRESSURE)

SIZE			PART NUMBER		MATERIAL	COLOUR
DN	Inch	Dash	Cap for female coupling	Cap for male coupling		
6.3	1/4"	-04	Q1A9B00R-04	Q1A8B00R-04	PVC	RED
6.3	1/4"	-04	Q1A9B00B-04	Q1A8B00B-04	PVC	BLUE
10	3/8"	-06	Q1A9B00R-06	Q1A8B00R-06	PVC	RED
10	3/8"	-06	Q1A9B00B-06	Q1A8B00B-06	PVC	BLUE
12.5	1/2"	-08	Q1A9B00R-08	Q1A8B00R-08	PVC	RED
12.5	1/2"	-08	Q1A9B00B-08	Q1A8B00B-08	PVC	BLUE
16	5/8"	-10	Q1A9B00R-10	Q1A8B00R-10	PVC	RED
20	3/4"	-12	Q1A9B00R-12	Q1A8B00R-12	PVC	RED
20	3/4"	-12	Q1A9B00B-12	Q1A8B00B-12	PVC	BLUE
25	1"	-16	Q1A9B00R-16	Q1A8B00R-16	PVC	RED
25	1"	-16	Q1A9B00B-16	Q1A8B00B-16	PVC	BLUE



Q1A8B00

CAPS FOR MQS-FP (FLAT-FACE MALE CONNECTABLE UNDER PRESSURE)

SIZE			PART NUMBER		MATERIAL	COLOUR
DN	Inch	Dash	Plug for Female coupling	Cap for Male coupling		
10	3/8"	-06	-	Q1A8B00R-06	PVC	RED
10	3/8"	-06	-	Q1A8B00B-06	PVC	BLUE
12.5	1/2"	-08	-	Q1A8B00R-08	PVC	RED
12.5	1/2"	-08	-	Q1A8B00B-08	PVC	BLUE
16	5/8"	-10	-	Q1A8B00R-10	PVC	RED
19	3/4"	-12	-	Q1A8B00R-12	PVC	RED
19	3/4"	-12	-	Q1A8B00B-12	PVC	BLUE
25	1"	-16	-	Q1A8B00B-16	PVC	RED
25	1"	-16	-	Q1A8B00R-16	PVC	BLUE



Q1A3B00
Q1A2B00

PLUGS AND CAPS
FOR MQS-B (ISO B)

SIZE			PART NUMBER		MATERIAL	COLOUR
DN	Inch	Dash	Plug for Female coupling	Cap for Male coupling		
6.3	1/4"	-04	Q1A3B00R-04	Q1A2B00R-04	PVC	RED



Q1AJA00
Q1AIA00

PLUGS AND CAPS
FOR MQS-SGR (SCREW-TYPE)
& MQS-SG (SCREW-TYPE)

SIZE			PART NUMBER		MATERIAL	COLOUR
DN	Inch	Dash	Cap for female coupling	Plug for male coupling		
6.3	1/4"	-04	Q1AJA00R-04	Q1AIA00R-04	PE-HD	RED
10	3/8"	-06	Q1AJA00R-06	Q1AIA00R-06	PE-HD	RED
12.5	1/2"	-08	Q1AJA00R-08	Q1AIA00R-08	PE-HD	RED
20	3/4"	-12	Q1AJA00R-12	Q1AIA00R-12	PE-HD	RED
25	1"	-16	Q1AJA00R-16	Q1AIA00R-16	PE-HD	RED
38	1.1/2"	-24	Q1AJA00R-24	Q1AIA00R-24	PE-HD	RED



Q1AJ100
Q1AI100

CAPS AND PLUGS
FOR MQS-SG (SCREW-TYPE)
& MQS-SGR (SCREW-TYPE
GERMAN MARKET)

SIZE			PART NUMBER		MATERIAL	COLOUR
DN	Inch	Dash	Cap for female coupling	Plug for male coupling		
6.3	1/4"	-04	Q1AJ100N-04	Q1AI100N-04	STEEL + PE-LD	-
10	3/8"	-06	Q1AJ100N-06	Q1AI100N-06	STEEL + PE-LD	-
12.5	1/2"	-08	Q1AJ100N-08	Q1AI100N-08	STEEL + PE-LD	-
20	3/4"	-12	Q1AJ100N-12	Q1AI100N-12	STEEL + PE-LD	-
25	1"	-16	Q1AJ100N-16	Q1AI100N-16	STEEL + PE-LD	-



Q1AN100
Q1AM100

CAPS AND PLUGS
FOR MQS-SC (SCREW-TYPE
HYDRAULIC CYLINDERS)

SIZE			PART NUMBER		MATERIAL	COLOUR
DN	Inch	Dash	Plug for Female coupling	Cap for Male coupling		
6.3	1/4"	-04	Q1AN100N-04	Q1AM100N-04	STEEL + PE-LD	-
10	3/8"	-06	Q1AN100N-06	Q1AM100N-06	STEEL + PE-LD	-



Q1AQ100
Q1AP100

CAPS AND PLUGS
FOR MQS-ST
(SCREW-TYPE TRUCKS)

SIZE			PART NUMBER		MATERIAL	COLOUR
DN	Inch	Dash	Cap for female coupling	Plug for male coupling		
20	3/4"	-12	Q1AQ100N-12	Q1AP100N-12	STEEL	-
25	1"	-16	Q1AQ100N-16	Q1AP100N-16	STEEL	-



Q1AL100
Q1AK100

CAPS AND PLUGS
FOR MQS-SH (SCREW-TYPE
FOR VERY HIGH PRESSURE)

SIZE			PART NUMBER		MATERIAL	COLOUR
DN	Inch	Dash	Plug for Female coupling	Cap for Male coupling		
6.3	1/4"	-04	Q1AL100N-04	Q1AK100N-04	STEEL + PE-LD	-
10	3/8"	-06	Q1AL100N-06	Q1AK100N-06	STEEL + PE-LD	-
12.5	1/2"	-08	Q1AL100N-08	Q1AK100N-08	STEEL + PE-LD	-
20	3/4"	-12	Q1AL100N-12	Q1AK100N-12	STEEL + PE-LD	-
25	1"	-16	Q1AL100N-16	Q1AK100N-16	STEEL + PE-LD	-



Q1ACB00

CAP
FOR MQS-D (DIAGNOSTIC)

SIZE			PART NUMBER	MATERIAL	COLOUR
DN	Inch	Dash	Cap for Male coupling		
5	1/8"	-02	Q1ACB00K-02	PVC	BLACK



Q1AEA00

CAP
FOR MQS-VB
(BRAKING VALVES)

SIZE			PART NUMBER	MATERIAL	COLOUR
DN	Inch	Dash	Cap for Male coupling		
12.5	1/2"	-08	Q1AEA00R-08	PVC	RED



Q1AGA00

CAP
FOR MQS-VS
(AGRICULTURAL VALVES)

SIZE			PART NUMBER	MATERIAL	COLOUR
DN	Inch	Dash	Cap for Male coupling		
12.5	1/2"	-08	Q1AGA00R-08	PE-HD	RED



Q1A1D02

AUTOMATIC CAP
FOR MQS-AF (PUSH-PULL)

SIZE			PART NUMBER	MATERIAL	COLOUR
DN	Inch	Dash	Cap for Female coupling		
12.5	1/2"	-08	Q1A1D02Y-08	POM	YELLOW
12.5	1/2"	-08	Q1A1D02R-08	POM	RED
12.5	1/2"	-08	Q1A1D02K-08	POM	BLACK
12.5	1/2"	-08	Q1A1D02G-08	POM	GREEN
12.5	1/2"	-08	Q1A1D02B-08	POM	BLUE
20	3/4"	-12	Q1A1D02Y-12	POM	YELLOW
20	3/4"	-12	Q1A1D02R-12	POM	RED
20	3/4"	-12	Q1A1D02K-12	POM	BLACK
20	3/4"	-12	Q1A1D02G-12	POM	GREEN
20	3/4"	-12	Q1A1D02B-12	POM	BLUE



Q1A1D02

AUTOMATIC CAP
FOR MQS-AFP, MQS-AFM,
MQS-AFB, MQS-ARM &
MQS-ARB (ISO A PUSH-PULL)

SIZE			PART NUMBER	MATERIAL	COLOUR
DN	Inch	Dash	Cap for Female coupling		
12.5	1/2"	-08	Q1A1D02B-08	POM	BLUE
12.5	1/2"	-08	Q1A1D02G-08	POM	GREEN
12.5	1/2"	-08	Q1A1D02K-08	POM	BLACK
12.5	1/2"	-08	Q1A1D02R-08	POM	RED
12.5	1/2"	-08	Q1A1D02Y-08	POM	YELLOW



Q1A9D02

AUTOMATIC CAP
FOR MQS-F (FEMALE)
& MQS-FH (FEMALE)

SIZE			PART NUMBER	MATERIAL	COLOUR
DN	Inch	Dash	Plug for Female coupling		
12.5	1/2"	-08	Q1A9D02R-08	POM	RED
16	5/8"	-10	Q1A9D02B-10	POM	BLUE
20	3/4"	-12	Q1A9D02B-12	POM	BLUE



Q1AL500
Q1AK500

CAPS AND PLUGS
FOR MQS-SH (SCREW-TYPE
VERY HIGH PRESSURE)

SIZE			PART NUMBER		MATERIAL	COLOUR
DN	Inch	Dash	Plug for Female coupling	Cap for Male coupling		
31.5	1.1/4"	-20	Q1AL500N-20	Q1AK500N-20	ALUMINIUM + STEEL	-
38	1.1/2"	-24	Q1AL500N-24	Q1AK500N-24	ALUMINIUM + STEEL	-



Q1AW500
Q1AV500

CAPS AND PLUGS
FOR MQS-FS (SCREW-TYPE
FLAT FACE)

SIZE			PART NUMBER		MATERIAL	COLOUR
DN	Inch	Dash	Plug for Female coupling	Cap for Male coupling		
10	3/8"	-06	Q1AW500N-06	Q1AV500N-06	ALUMINIUM + STEEL	-
12.5	1/2"	-08	Q1AW500N-08	Q1AV500N-08	ALUMINIUM + STEEL	-
16	5/8"	-10	Q1AW500N-10	Q1AV500N-10	ALUMINIUM + STEEL	-
19	3/4"	-12	Q1AW500N-12	Q1AV500N-12	ALUMINIUM + STEEL	-
25	1"	-16	Q1AW500N-16	Q1AV500N-16	ALUMINIUM + STEEL	-
38	1-1/2"	-24	Q1AW500N-24	Q1AV500N-24	ALUMINIUM + STEEL	-



Q1A8093

SHAPED SEAL FOR MQS-F (FLAT-FACE), MQS-FH (FLAT-FACE HIGH PRESSURE) & MQS-FP (FLAT-FACE MALE CONNECTABLE UNDER PRESSURE)

SIZE			PART NUMBER	KIT	MATERIAL
DN	Inch	Dash			
6.3	1/4"	-04	Q1A8093N-04	SHAPED SEAL	POLYURETHANE
10	3/8"	-06	Q1A8093N-06	SHAPED SEAL	POLYURETHANE
12.5	1/2"	-08	Q1A8093N-08	SHAPED SEAL	POLYURETHANE
16	5/8"	-10	Q1A8093N-10	SHAPED SEAL	POLYURETHANE
20	3/4"	-12	Q1A8093N-12	SHAPED SEAL	POLYURETHANE
25	1"	-16	Q1A8093N-16	SHAPED SEAL	POLYURETHANE



Q1AV093

SHAPED SEAL FOR MQS-FS
(FLAT-FACE SCREW TYPE)

SIZE			PART NUMBER	KIT	MATERIAL
DN	Inch	Dash			
10	3/8"	-06	Q1AV093N-06	SHAPED SEAL	POLYURETHANE
12.5	1/2"	-08	Q1AV093N-08	SHAPED SEAL	POLYURETHANE
16	5/8"	-10	Q1AV093N-10	SHAPED SEAL	POLYURETHANE
20	3/4"	-12	Q1AV093N-12	SHAPED SEAL	POLYURETHANE
25	1"	-16	Q1AV093N-16	SHAPED SEAL	POLYURETHANE
38	1.1/2"	-24	Q1AV093N-24	SHAPED SEAL	POLYURETHANE



Q1A1013

O-RING AND BACK-UP RING
FOR MQS-A (ISO A)

SIZE			PART NUMBER	KIT	MATERIAL	
DN	Inch	Dash			O-Ring	Backup Ring
6.3	1/4"	-04	Q1A1013N-04	O-RING + BACK-UP RING	NBR	PTFE
10	3/8"	-06	Q1A1013N-06	O-RING + BACK-UP RING	NBR	PTFE
12.5	1/2"	-08	Q1A1013N-08	O-RING + BACK-UP RING	NBR	PTFE
20	3/4"	-12	Q1A1013N-12	O-RING + BACK-UP RING	NBR	PTFE
25	1"	-16	Q1A1013N-16	O-RING + BACK-UP RING	NBR	PTFE
31.5	1.1/4"	-20	Q1A1013N-20	O-RING + BACK-UP RING	NBR	PTFE
40	1.1/2"	-24	Q1A1013N-24	O-RING + BACK-UP RING	NBR	PTFE
51	2"	-32	Q1A1013N-32	O-RING + BACK-UP RING	NBR	PTFE



Q1A1013

O-RING AND BACK-UP RING
FOR MQS-AF
(ISO A PUSH-PULL)

SIZE			PART NUMBER	KIT	MATERIAL	
DN	Inch	Dash			O-Ring	Backup Ring
6.3	1/4"	-04	Q1A1013N-04	O-RING + BACK-UP RING	NBR	PTFE
10	3/8"	-06	Q1A1013N-06	O-RING + BACK-UP RING	NBR	PTFE
12.5	1/2"	-08	Q1A1013N-08	O-RING + BACK-UP RING	NBR	PTFE
20	3/4"	-12	Q1A1013N-12	O-RING + BACK-UP RING	NBR	PTFE
25	1"	-16	Q1A1013N-16	O-RING + BACK-UP RING	NBR	PTFE



Q1A1013

O-RING AND BACK-UP RING
FOR MQS-AP, MQS-AM &
MQS-AB (ISO A), MQS-AFP,
MQS-AFM, MQS-AFB, MQS-
ARM & MQS-ARB
(ISO A PUSH-PULL)

SIZE			PART NUMBER	KIT	MATERIAL	
DN	Inch	Dash			O-Ring	Backup Ring
12.5	1/2"	-08	Q1A1013N-08	O-RING + BACK-UP RING	NBR	PTFE



Q1A3013

O-RING AND BACK-UP RING
FOR MQS-B (ISO B)

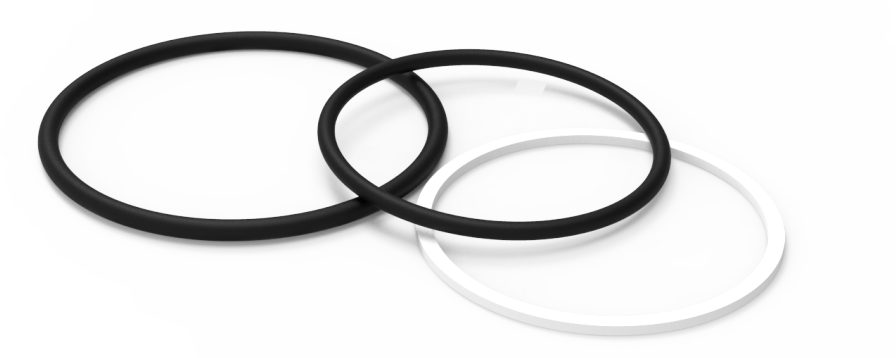
SIZE			PART NUMBER	KIT	MATERIAL	
DN	Inch	Dash			O-Ring	Backup Ring
5	1/8"	-02	Q1A3013N-02	O-RING + BACK-UP RING	NBR	PTFE
6.3	1/4"	-04	Q1A3013N-04	O-RING + BACK-UP RING	NBR	PTFE
10	3/8"	-06	Q1A3013N-06	O-RING + BACK-UP RING	NBR	PTFE
12.5	1/2"	-08	Q1A3013N-08	O-RING + BACK-UP RING	NBR	PTFE
20	3/4"	-12	Q1A3013N-12	O-RING + BACK-UP RING	NBR	PTFE
25	1"	-16	Q1A3013N-16	O-RING + BACK-UP RING	NBR	PTFE



Q1A5013

O-RING AND BACK-UP RING
FOR MQS-N
(STANDARD SERIES)

SIZE			PART NUMBER	KIT	MATERIAL	
DN	Inch	Dash			O-Ring	Backup Ring
6.3	1/4"	-04	Q1A5013N-04	O-RING + BACK-UP RING	NBR	PTFE
10	3/8"	-06	Q1A5013N-06	O-RING + BACK-UP RING	NBR	PTFE
12.5	1/2"	-08	SEE SPARE PARTS FOR ISO SERIES			
20	3/4"	-12	Q1A5013N-12	O-RING + BACK-UP RING	NBR	PTFE
20	3/4"	-12	Q1A5013N-12B	O-RING + BACK-UP RING	NBR	PTFE
25	1"	-16	Q1A5013N-16	O-RING + BACK-UP RING	NBR	PTFE
25	1"	-16	Q1A5013N-16B	O-RING + BACK-UP RING	NBR	PTFE
25	1"	-16	Q1A5013N-16C	O-RING + BACK-UP RING	NBR	PTFE
31.5	1.1/4"	-20	Q1A5013N-20	O-RING + BACK-UP RING	NBR	PTFE
40	1.1/2"	-24	Q1A5013N-24	O-RING + BACK-UP RING	NBR	PTFE



Q1AJ013

O-RING AND BACK-UP RING
FOR MQS-SG
& MQS-SGR (SCREW-TYPE)

SIZE			PART NUMBER	KIT	MATERIAL	
DN	Inch	Dash			O-Ring	Backup Ring
6.3	1/4"	-04	Q1AJ013N-04	O-RING + BACK-UP RING	NBR	PTFE
10	3/8"	-06	Q1AJ013N-06	O-RING + BACK-UP RING	NBR	PTFE
12.5	1/2"	-08	Q1AJ013N-08	O-RING + BACK-UP RING	NBR	PTFE
20	3/4"	-12	Q1AJ013N-12	O-RING + BACK-UP RING	NBR	PTFE
25	1"	-16	Q1AJ013N-16	O-RING + BACK-UP RING	NBR	PTFE
40	1.1/2"	-24	Q1AJ013N-24	O-RING + BACK-UP RING	NBR	PTFE



Q1AN013

O-RING AND BACK-UP RING
FOR MQS-SC (SCREW-TYPE
HYDRAULIC CYLINDERS)

SIZE			PART NUMBER	KIT	MATERIAL	
DN	Inch	Dash			O-Ring	Backup Ring
6.3	1/4"	-04	Q1AN013N-04	O-RING + BACK-UP RING	NBR	PTFE
10	3/8"	-06	Q1AN013N-06	O-RING + BACK-UP RING	NBR	PTFE



Q1AQ013

O-RING RING
FOR MQS-ST (SCREW-TYPE
FOR TRUCKS)

SIZE			PART NUMBER	KIT	MATERIAL	
DN	Inch	Dash			O-Ring	Backup Ring
20	3/4"	-12	Q1AQ013N-12	O-RING	NBR	-
25	1"	-16	Q1AQ013N-16	O-RING	NBR	-



Q1AL013

O-RING AND BACK-UP RING
FOR MQS-SH (SCREW-TYPE
FOR VERY HIGH PRESSURE)

SIZE			PART NUMBER	KIT	MATERIAL	
DN	Inch	Dash			O-Ring	Backup Ring
6.3	1/4"	-04	Q1AL013N-04	O-RING + BACK-UP RING	NBR	PTFE
10	3/8"	-06	Q1AL013N-06	O-RING + BACK-UP RING	NBR	PTFE
12.5	1/2"	-08	Q1AL013N-08	O-RING + BACK-UP RING	NBR	PTFE
20	3/4"	-12	Q1AL013N-12	O-RING + BACK-UP RING	NBR	PTFE
25	1"	-16	Q1AL013N-16	O-RING + BACK-UP RING	NBR	PTFE
31.5	1¼"	-20	Q1AL013N-20	O-RING + BACK-UP RING	NBR	PTFE
38	1½"	-24	Q1AL013N-24	O-RING + BACK-UP RING	NBR	PTFE

ABOUT Q.SAFE CHECK VALVES

Manuli Hydraulics' check valves are expertly designed for optimal hydrodynamic performance, ensuring minimal pressure drop across the component, and therefore minimising the impact on the fluid flow in your systems. Manufactured from high quality steel with a Cr3+ (trivalent chrome) plating, Manuli check valves offer superior corrosion resistance - up to 500 hours to red rust in salt spray conditions - with the option to upgrade to our new E-Coat 1000 plating (1,000 hours to red rust) on request.

Valve sealing is supplied by a C98 high-carbon steel spring and (where required) a nitrile (NBR) o-ring and back-up ring arrangement, which prevents unwanted creeping of the rubber seal over time.

Manuli check valve housings come in 3 basic forms, "Standard", "DHI" and "Compact". This choice of housing design makes it even easier for you to include Manuli check valves into your systems regardless of space constraints.

The Manuli check valve range also includes "Bi-Directional" options for both the "Standard" and "DHI" housing types, to allow an even greater level of pressure control in your systems.

Q.SAFE CHECK VALVES

ACCESSORY TYPE	SIZE								PAGE No.
	¼"	⅜"	½"	¾"	1"	1¼"	1½"	2"	
STANDARD	■	■	■	■	■	■	■	■	504
COMPACT	■	■	■	■	■				511
BI-DIRECTIONAL		■	■	■					515
STANDARD - DHI	■	■	■	■	■	■	■	■	518
BI-DIRECTIONAL - DHI		■	■	■					522

How to order Manuli Check Valves

Our portfolio of check valves is designed to allow maximum flexibility of selection with the minimum number of unique parts required. So for all of our off-the-shelf valve families it is possible to have any of the listed configurations supplied with any one of the standard crack pressures.

When placing your order simply substitute the 11th character in the part number for the relevant "Digit" shown in the table below.

Note: All part numbers in the following pages are shown with a "A" in this position, corresponding to a 35 kPa (5.1 psi) crack pressure.*

** Except in the case of bi-directional check valves where all the options are listed.*



CRACK PRESSURE OPTIONS

Digit	Pressure (kPa)	Pressure (psi)
A	35	5.1
B	10	1.5
C	20	2.9
D	50	7.3
E	100	14.5
F	150	21.8
G	200	29.0
H	250	36.3
J	300	43.5
K	350	50.8
L	400	58.0
M	450	65.3
N	500	72.5
P	600	87.0
Q	700	101.5
R	800	116.0
S	900	130.5
T	1000	145.0
X	Without Spring	

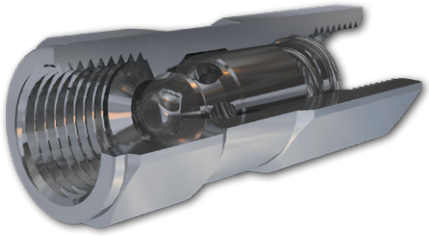
Example:

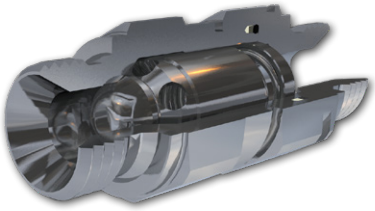
Part number "Q2A1110505A-04-04" would specify a 35 kPa crack pressure.

Part number "Q2A1110505M-04-04" would specify exactly the same valve configuration, but with a 450 kPa crack pressure.

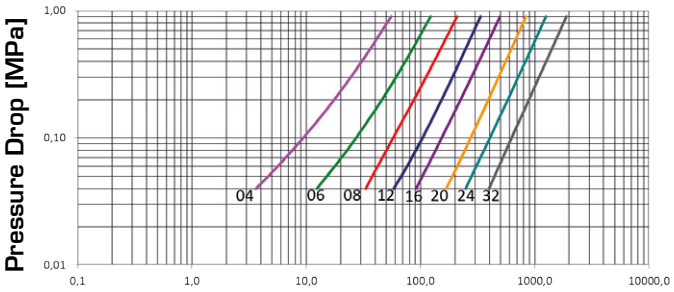
Note: *When specifying the crack pressure for a bi-directional check valve the digit value would refer to the crack pressure in the B-A direction. A-B direction crack pressure is always 35 kPa.*

STANDARD CHECK VALVES

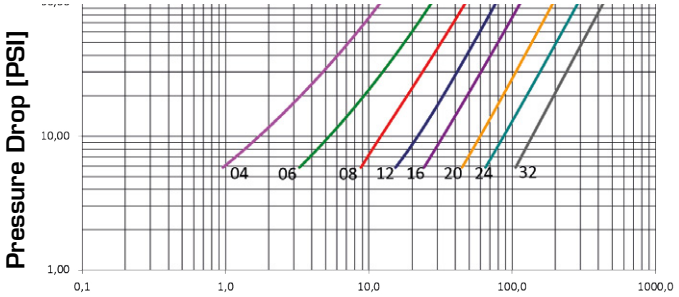




Pressure Drop



Pressure Drop



TECHNICAL DATA

SIZE			WORKING PRESSURE (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		MINIMUM BURST PRESSURE	
DN	inch	Dash	MPa	PSI	l/min	US GPM	MPa	PSI
6	1/4"	04	45	6,525	18	4.8	180	26,100
10	3/8"	06	35	5,075	46	12.2	140	20,300
12	1/2"	08	35	5,075	88	23.2	140	20,300
19	3/4"	12	35	5,075	153	40.4	140	20,300
25	1"	16	35	5,075	225	59.4	140	20,300
31	1.1/4"	20	35	5,075	394	104.1	140	20,300
38	1.1/2"	24	35	5,075	580	153.2	140	20,300
51	2"	32	35	5,075	890	235.1	140	20,300

PRODUCT DESCRIPTION

- Manufactured from high-quality materials
- Robust design
- Large range of termination end options available
- Large range of cracking-pressures available

MATERIAL

Steel, with springs in C98 high-carbon steel. Seals in NBR and back-up ring in PTFE.

WORKING TEMPERATURE

-22°F up to +230°F (-30°C up to +110°C)

SAFETY FACTOR

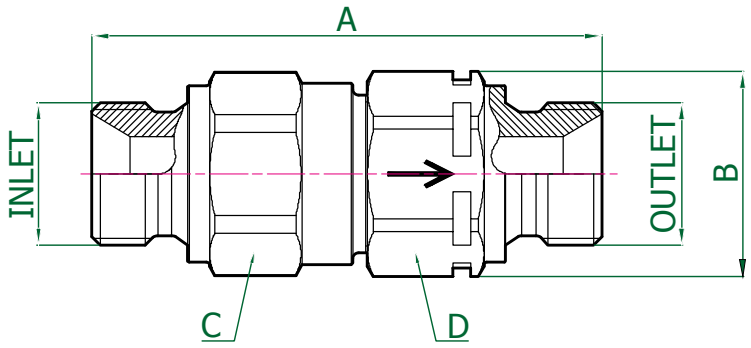
4:1 for dynamic pressures

IMPULSE PRESSURES

1,000,000 cycles at 120% of the rated one (freq. 1Hz)

TEST SPECIFICATIONS

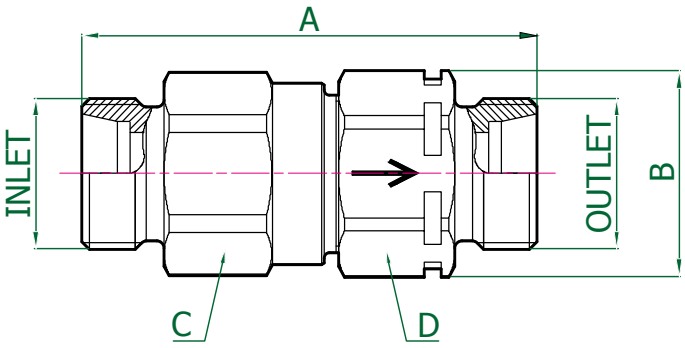
ISO 18869



Q2A1110505

MALE-MALE, STANDARD
INLET: BSP MALE 60° CONE SEAT
BS5200 / ISO 8434-6
OUTLET: BSP MALE 60° CONE SEAT
BS5200 / ISO 8434-6
MATERIAL: STEEL
SEALS: NBR (NITRILE)

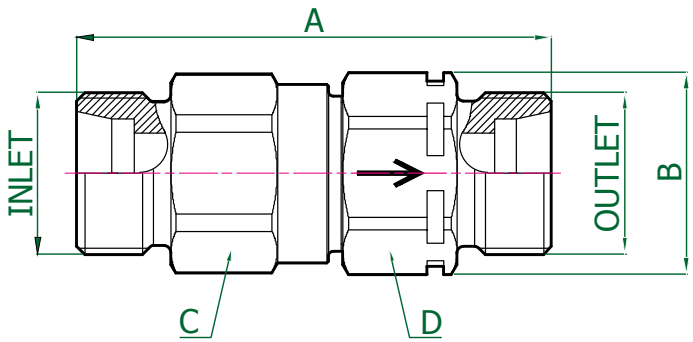
NOMINAL SIZE			PART NUMBER	OPENING PRESSURE	THREADS		DIMENSIONS mm				
DN	inch	Dash			INLET	OUTLET	A	B	C	D	E
6	1/4"	-04	Q2A1110505A-04-04	35 kPa	1/4"	1/4"	56	Ø21	19	19	
10	3/8"	-06	Q2A1110505A-06-06	35 kPa	3/8"	3/8"	64	Ø24,2	22	22	
12.5	1/2"	-08	Q2A1110505A-08-08	35 kPa	1/2"	1/2"	74.5	Ø30	27	27	
19	3/4"	-12	Q2A1110505A-12-12	35 kPa	3/4"	3/4"	88.2	Ø38	34	34	
25	1"	-16	Q2A1110505A-16-16	35 kPa	1"	1"	100.9	Ø45	41	41	
31	1-1/4"	-20	Q2A1110505A-20-20	35 kPa	1-1/4"	1-1/4"	122.4	Ø55	50	50	
38	1-1/2"	-24	Q2A1110505A-24-24	35 kPa	1-1/2"	1-1/2"	141	Ø66	60	60	
51	2"	-32	Q2A1110505A-32-32	35 kPa	2"	2"	173.7	Ø82	75	75	



Q2A1111111

MALE-MALE, STANDARD
INLET: METRIC MALE 24° CONE SEAT
LIGHT TYPE DIN 3861 / ISO 8434-1
OUTLET: METRIC MALE 24° CONE SEAT
LIGHT TYPE DIN 3861 / ISO 8434-1
MATERIAL: STEEL
SEALS: NBR (NITRILE)

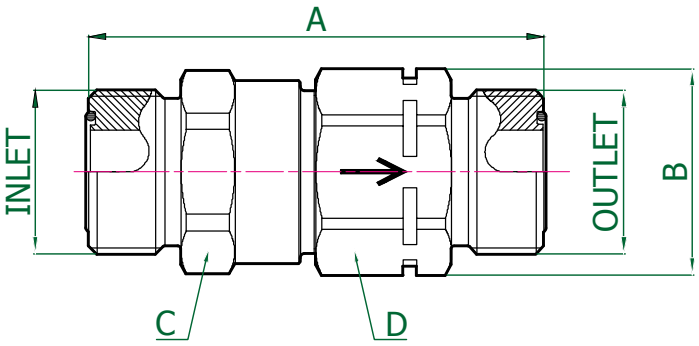
NOMINAL SIZE			PART NUMBER	OPENING PRESSURE	THREADS		DIMENSIONS mm				
DN	inch	Dash			INLET	OUTLET	A	B	C	D	E
6	1/4"	-04	Q2A1111111A-12-12	35 kPa	M12X1,5	M12X1,5	50.5	Ø21	19	19	
6	1/4"	-04	Q2A1111111A-14-14	36 kPa	M14X1,5	M14X1,5	50.5	Ø21	19	19	
10	3/8"	-06	Q2A1111111A-18-18	35 kPa	M18X1,5	M18X1,5	58.5	Ø24,2	22	22	
12.5	1/2"	-08	Q2A1111111A-22-22	35 kPa	M22X1,5	M22X1,5	66.5	Ø30	27	27	
19	3/4"	-12	Q2A1111111A-26-26	35 kPa	M26X1,5	M26X1,5	74.5	Ø38	34	34	
25	1"	-16	Q2A1111111A-30-30	35 kPa	M30X2	M30X2	84.5	Ø45	41	41	
31	1-1/4"	-20	Q2A1111111A-36-36	35 kPa	M36X2	M36X2	104	Ø55	50	50	



Q2A1111212

MALE-MALE, STANDARD
INLET: METRIC MALE 24° CONE SEAT
HEAVY TYPE DIN 3861 / ISO 8434-1
OUTLET: METRIC MALE 24° CONE SEAT
HEAVY TYPE DIN 3861 / ISO 8434-1
MATERIAL: STEEL
SEALS: NBR (NITRILE)

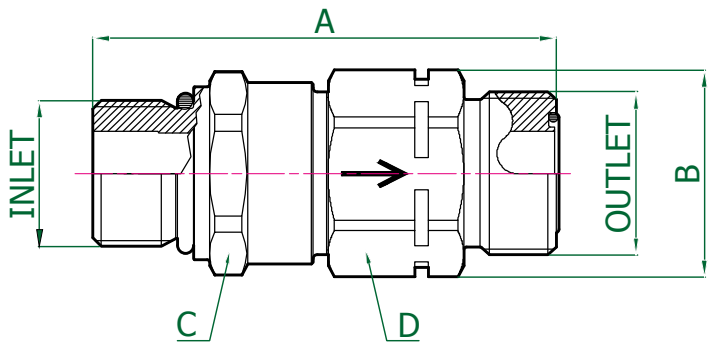
NOMINAL SIZE			PART NUMBER	OPENING PRESSURE	THREADS		DIMENSIONS mm				
DN	inch	Dash			INLET	OUTLET	A	B	C	D	E
6	1/4"	-04	Q2A1111212A-16-16	35 kPa	M16X1,5	M16X1,5	54.5	Ø21	19	19	
10	3/8"	-06	Q2A1111212A-20-20	35 kPa	M20X1,5	M20X1,5	60.5	Ø24,2	22	22	
12.5	1/2"	-08	Q2A1111212A-24-24	35 kPa	M24X1,5	M24X1,5	70.5	Ø30	27	27	
19	3/4"	-12	Q2A1111212A-30-30	35 kPa	M30X2	M30X2	82.5	Ø38	34	34	
25	1"	-16	Q2A1111212A-36-36	35 kPa	M36X2	M36X2	92.5	Ø45	41	41	



Q2A1112424

MALE-MALE, STANDARD
INLET: ORFS MALE ISO 8434-3
/ SAE J1453
OUTLET: ORFS MALE ISO 8434-3
/ SAE J1453
MATERIAL: STEEL
SEALS: NBR (NITRILE)

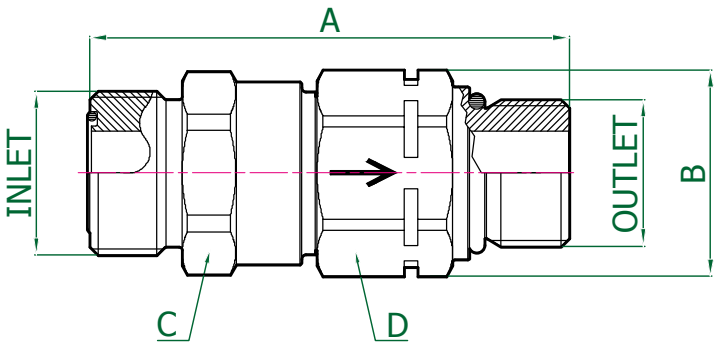
NOMINAL SIZE			PART NUMBER	OPENING PRESSURE	THREADS		DIMENSIONS mm				
DN	inch	Dash			INLET	OUTLET	A	B	C	D	E
10	3/8"	-06	Q2A1112424A-06-06	35 kPa	11/16"-16 UN	11/16"-16 UN	58.9	Ø24,2	22	22	
12.5	1/2"	-08	Q2A1112424A-08-08	35 kPa	13/16"-16 UN	13/16"-16 UN	68.1	Ø30	27	27	
20	3/4"	-12	Q2A1112424A-10-10	35 kPa	1"-14 UNS	1"-14 UNS	74.3	Ø38	34	34	
20	3/4"	-12	Q2A1112424A-12-12	35 kPa	1.3/16"-12 UN	1.3/16"-12 UN	83.8	Ø38	34	34	
25	1"	-16	Q2A1112424A-16-16	35 kPa	1.7/16"-12 UN	1.7/16"-12 UN	91.5	Ø45	41	41	



Q2A1113224

MALE-MALE, STANDARD
INLET: MALE O'RING BOSS (NON-ADJUSTABLE HEAVY) SAE J1926-2
OUTLET: ORFS MALE ISO 8434-3 / SAE J1453
MATERIAL: STEEL
SEALS: NBR (NITRILE)

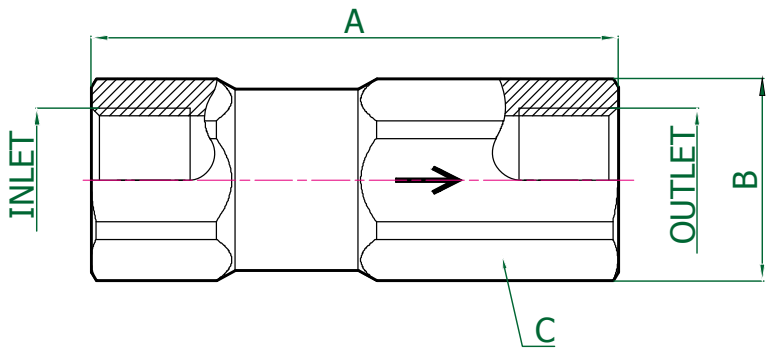
NOMINAL SIZE			PART NUMBER	OPENING PRESSURE	THREADS		DIMENSIONS mm				
DN	inch	Dash			INLET	OUTLET	A	B	C	D	E
10	3/8"	-06	Q2A1113224A-06-06	35 kPa	9/16"-18 UNF	11/16"-16 UN	59.7	Ø24,2	22	22	
12.5	1/2"	-08	Q2A1113224A-08-08	35 kPa	3/4"-16 UNF	13/16"-16 UN	69.3	Ø30	27	27	
20	3/4"	-12	Q2A1113224A-10-10	35 kPa	7/8"-14 UNF	1"-14 UNS	80.5	Ø38	34	34	
20	3/4"	-12	Q2A1113224A-12-12	35 kPa	1.1/16"-12 UN	1.3/16"-12 UN	86	Ø38	34	34	
25	1"	-16	Q2A1113224A-16-16	35 kPa	1.5/16"-12 UN	1.7/16"-12 UN	92.5	Ø45	41	41	



Q2A1112432

MALE-MALE, STANDARD
INLET: ORFS MALE ISO 8434-3 / SAE J1453
OUTLET: MALE O'RING BOSS (NON-ADJUSTABLE HEAVY) SAE J1926-2
MATERIAL: STEEL
SEALS: NBR (NITRILE)

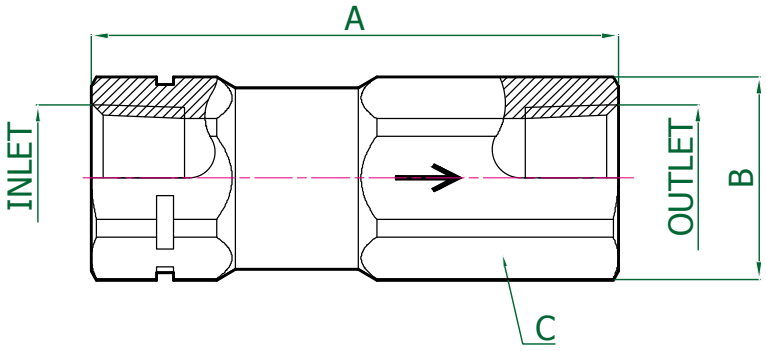
NOMINAL SIZE			PART NUMBER	OPENING PRESSURE	THREADS		DIMENSIONS mm				
DN	inch	Dash			INLET	OUTLET	A	B	C	D	E
10	3/8"	-06	Q2A1112432A-06-06	35 kPa	11/16"-16 UN	9/16"-18 UNF	60.7	Ø24,2	22	22	
12.5	1/2"	-08	Q2A1112432A-08-08	35 kPa	13/16"-16 UN	3/4"-16 UNF	72	Ø30	27	27	
20	3/4"	-12	Q2A1112432A-10-10	35 kPa	1"-14 UNS	7/8"-14 UNF	81.3	Ø38	34	34	
20	3/4"	-12	Q2A1112432A-12-12	35 kPa	1.3/16"-12 UN	1.1/16"-12 UN	85.3	Ø38	34	34	
25	1"	-16	Q2A1112432A-16-16	35 kPa	1.7/16"-12 UN	1.5/16"-12 UN	92.5	Ø45	41	41	



Q2A2100404

FEMALE-FEMALE, STANDARD
INLET: BSP FIXED FEMALE
DIN 3852-2 'FORM X' / ISO 1179-1
OUTLET: BSP FIXED FEMALE
DIN 3852-2 'FORM X' / ISO 1179-1
MATERIAL: STEEL
SEALS: NBR (NITRILE)

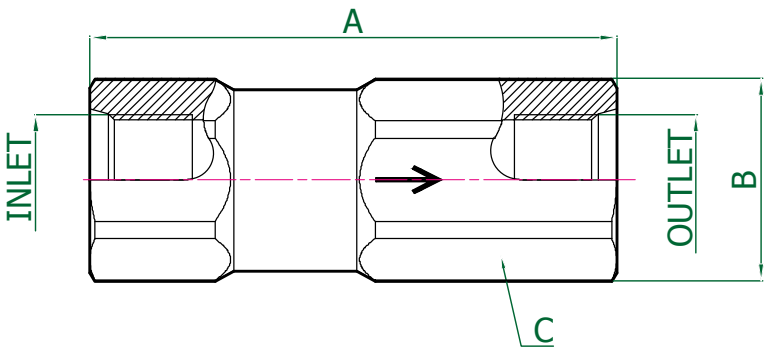
NOMINAL SIZE			PART NUMBER	OPENING PRESSURE	THREADS		DIMENSIONS mm				
DN	inch	Dash			INLET	OUTLET	A	B	C	D	E
6	1/4"	-04	Q2A2100404A-04-04	35 kPa	1/4"	1/4"	60	Ø21	19		
10	3/8"	-06	Q2A2100404A-06-06	35 kPa	3/8"	3/8"	65 (67*)	Ø24.2	22		
12.5	1/2"	-08	Q2A2100404A-08-08	35 kPa	1/2"	1/2"	77 (81*)	Ø29.6	27		
19	3/4"	-12	Q2A2100404A-12-12	35 kPa	3/4"	3/4"	90	Ø37.4	34		
25	1"	-16	Q2A2100404A-16-16	35 kPa	1"	1"	104	Ø45	41		
31	1-1/4"	-20	Q2A2100404A-20-20	35 kPa	1-1/4"	1-1/4"	128.5	Ø55	50		
38	1-1/2"	-24	Q2A2100404A-24-24	35 kPa	1-1/2"	1-1/2"	148	Ø66	60		
51	2"	-32	Q2A2100404A-32-32	35 kPa	2"	2"	178	Ø82	75		



Q2A2103434

FEMALE-FEMALE, STANDARD
INLET: NPTF FIXED FEMALE
SAE J476A
OUTLET: NPTF FIXED FEMALE
SAE J476A
MATERIAL: STEEL
SEALS: NBR (NITRILE)

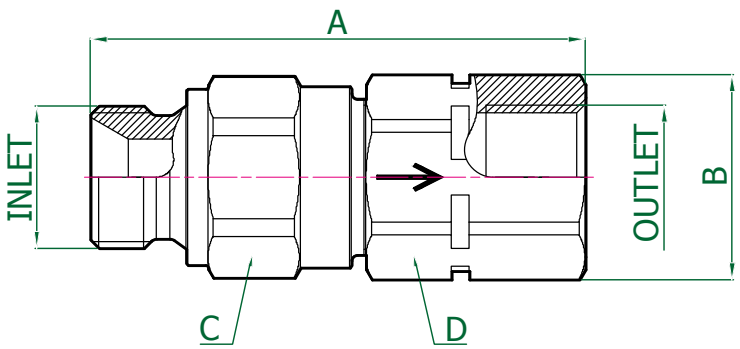
NOMINAL SIZE			PART NUMBER	OPENING PRESSURE	THREADS		DIMENSIONS mm				
DN	inch	Dash			INLET	OUTLET	A	B	C	D	E
6	1/4"	-04	Q2A2103434A-04-04	35 kPa	1/4" NPTF	1/4" NPTF	60	Ø21	19		
10	3/8"	-06	Q2A2103434A-06-06	35 kPa	3/8" NPTF	3/8" NPTF	65 (67*)	Ø24.2	22		
12.5	1/2"	-08	Q2A2103434A-08-08	35 kPa	1/2" NPTF	1/2" NPTF	77 (81*)	Ø29.6	27		
19	3/4"	-12	Q2A2103434A-12-12	35 kPa	3/4" NPTF	3/4" NPTF	90	Ø37.4	34		
25	1"	-16	Q2A2103434A-16-16	35 kPa	1" NPTF	1" NPTF	104	Ø45	41		
31	1-1/4"	-20	Q2A2103434A-20-20	35 kPa	1-1/4" NPTF	1-1/4" NPTF	128.5	Ø55	50		
38	1-1/2"	-24	Q2A2103434A-24-24	35 kPa	1-1/2" NPTF	1-1/2" NPTF	148	Ø66	60		
51	2"	-32	Q2A2103434A-32-32	35 kPa	2" NPTF	2" NPTF	178	Ø82	75		



Q2A2103030

FEMALE-FEMALE, STANDARD
INLET: FEMALE O'RING BOSS TYPE SAE J1926-1
OUTLET: FEMALE O'RING BOSS TYPE SAE J1926-1
MATERIAL: STEEL
SEALS: NBR (NITRILE)

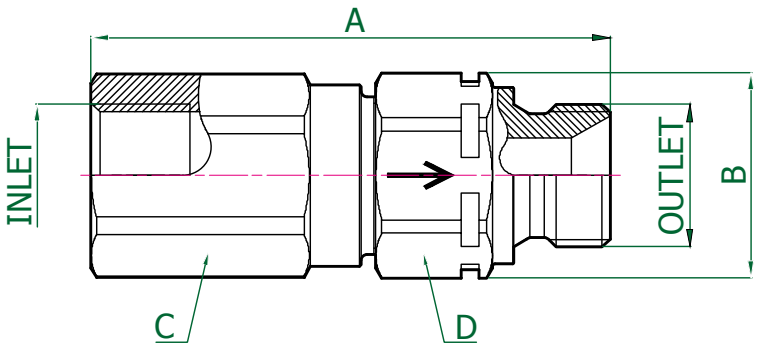
NOMINAL SIZE			PART NUMBER	OPENING PRESSURE	THREADS		DIMENSIONS mm				
DN	inch	Dash			INLET	OUTLET	A	B	C	D	E
12.5	1/2"	-08	Q2A2103030A-08-08	35 kPa	3/4"-16 UNF	3/4"-16 UNF	77 (81*)	Ø29.6	27		
19	3/4"	-12	Q2A2103030A-12-12	35 kPa	1.1/16"-12 UN	1.1/16"-12 UN	96	Ø37.4	34		
25	1"	-16	Q2A2103030A-16-16	35 kPa	1.5/16"-12 UN	1.5/16"-12 UN	104	Ø45	41		



Q2A3110504

MALE-FEMALE, STANDARD
INLET: BSP MALE 60° CONE SEAT BS5200 / ISO 8434-6
OUTLET: BSP FIXED FEMALE DIN 3852-2 'FORM X' / ISO 1179-1
MATERIAL: STEEL
SEALS: NBR (NITRILE)

NOMINAL SIZE			PART NUMBER	OPENING PRESSURE	THREADS		DIMENSIONS mm				
DN	inch	Dash			INLET	OUTLET	A	B	C	D	E
6	1/4"	-04	Q2A3110504A-04-04	35 kPa	1/4"	1/4"	54.8	Ø21	19	19	
10	3/8"	-06	Q2A3110504A-06-06	35 kPa	3/8"	3/8"	63.8	Ø24,2	22	22	
12.5	1/2"	-08	Q2A3110504A-08-08	35 kPa	1/2"	1/2"	72.3	Ø30	27	27	
19	3/4"	-12	Q2A3110504A-12-12	35 kPa	3/4"	3/4"	83	Ø38	34	34	
25	1"	-16	Q2A3110504A-16-16	35 kPa	1"	1"	95.7	Ø45	41	41	

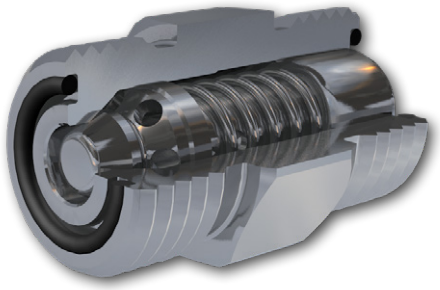


Q2A4110405

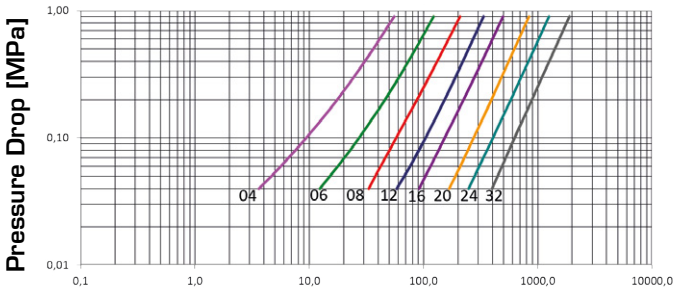
FEMALE-MALE, STANDARD
INLET: BSP FIXED FEMALE
DIN 3852-2 'FORM X' / ISO 1179-1
OUTLET: BSP MALE 60° CONE SEAT
BS5200 / ISO 8434-6
MATERIAL: STEEL
SEALS: NBR (NITRILE)

NOMINAL SIZE			PART NUMBER	OPENING PRESSURE	THREADS		DIMENSIONS mm				
DN	inch	Dash			INLET	OUTLET	A	B	C	D	E
6	1/4"	-04	Q2A4110405A-04-04	35 kPa	1/4"	1/4"	62.5	Ø21	19	19	
10	3/8"	-06	Q2A4110405A-06-06	35 kPa	3/8"	3/8"	70.5	Ø24,2	22	22	
12.5	1/2"	-08	Q2A4110405A-08-08	35 kPa	1/2"	1/2"	83	Ø30	27	27	
19	3/4"	-12	Q2A4110405A-12-12	35 kPa	3/4"	3/4"	96.5	Ø38	34	34	
25	1"	-16	Q2A4110405A-16-16	35 kPa	1"	1"	111.5	Ø45	41	41	

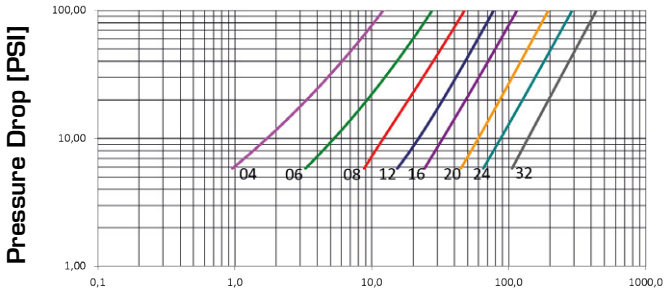
COMPACT CHECK VALVES



Pressure Drop



Pressure Drop



TECHNICAL DATA

SIZE			WORKING PRESSURE (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		MINIMUM BURST PRESSURE	
DN	inch	Dash	MPa	PSI	l/min	US GPM	MPa	PSI
6	1/4"	04	35	5,075	5	1.3	140	20,300
10	3/8"	06	35	5,075	11	2.9	140	20,300
12	1/2"	08	35	5,075	37	9.8	140	20,300
19	3/4"	12	35	5,075	73	19.3	140	20,300
25	1"	16	35	5,075	106	28.0	140	20,300

PRODUCT DESCRIPTION

- Manufactured from high-quality materials
- Robust design
- Space saving design
- Large range of termination end options available
- Large range of cracking-pressures available

MATERIAL

Steel, with springs in C98 high-carbon steel. Seals in NBR and back-up ring in PTFE.

WORKING TEMPERATURE

-22°F up to +230°F (-30°C up to +110°C)

SAFETY FACTOR

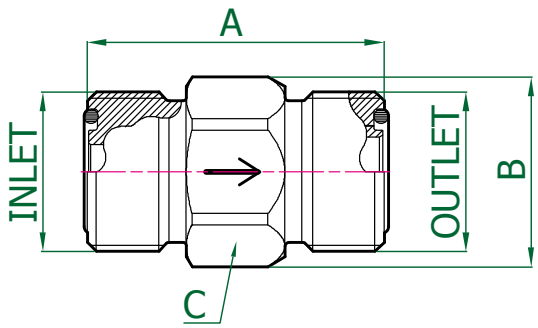
4:1 for dynamic pressures

IMPULSE PRESSURES

1,000,000 cycles at 120% of the rated one (freq. 1Hz)

TEST SPECIFICATIONS

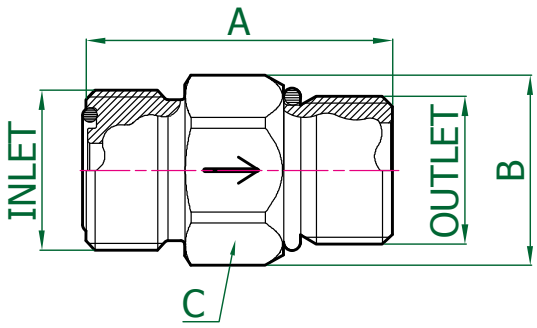
ISO 18869



Q2B1112424

MALE-MALE, COMPACT
INLET: ORFS MALE ISO 8434-3 / SAE J1453
OUTLET: ORFS MALE ISO 8434-3 / SAE J1453
MATERIAL: STEEL
SEALS: NBR (NITRILE)

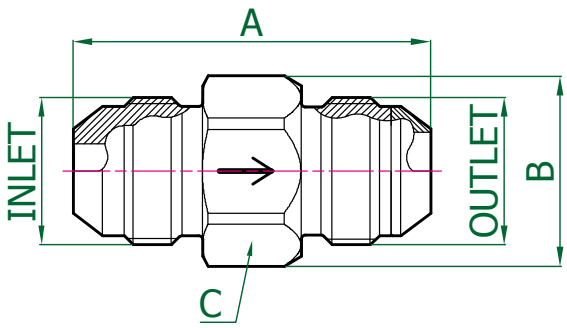
NOMINAL SIZE			PART NUMBER	OPENING PRESSURE	THREADS		DIMENSIONS mm				
DN	inch	Dash			INLET	OUTLET	A	B	C	D	E
6	1/4"	-4	Q2B1112424A-04-04	35 kPa	9/16"-18 UNF	9/16"-18 UNF	31	ø18,8	17		
10	3/8"	-6	Q2B1112424A-06-06	35 kPa	11/16"-16 UN	11/16"-16 UN	33.6	ø21	19		
12.5	1/2"	-8	Q2B1112424A-08-08	35 kPa	13/16"-16 UN	13/16"-16 UN	38.3	ø24,5	22		
12.5	1/2"	-8	Q2B1112424A-10-10	35 kPa	1"-14 UNS	1"-14 UNS	43.7	ø30	27		
20	3/4"	-12	Q2B1112424A-12-12	35 kPa	1.3/16"-12 UN	1.3/16"-12 UN	46.7	ø35,5	32		
25	1"	-16	Q2B1112424A-16-16	35 kPa	1.7/16"-12 UN	1.7/16"-12 UN	50.8	ø42	38		



Q2B1112432

MALE-MALE, COMPACT
INLET: ORFS MALE ISO 8434-3 / SAE J1453
OUTLET: MALE O'RING BOSS (NON-ADJUSTABLE HEAVY) SAE J1926-2
MATERIAL: STEEL
SEALS: NBR (NITRILE)

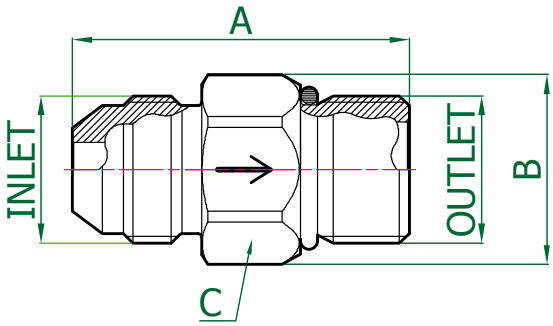
NOMINAL SIZE			PART NUMBER	OPENING PRESSURE	THREADS		DIMENSIONS mm				
DN	inch	Dash			INLET	OUTLET	A	B	C	D	E
10	3/8"	-6	Q2B1112432A-06-06	35 kPa	11/16"-16 UN	9/16"-18 UNF	34.4	ø21	19		
12.5	1/2"	-8	Q2B1112432A-08-08	35 kPa	13/16"-16 UN	3/4"-16 UNF	39.5	ø24,5	22		
12.5	1/2"	-8	Q2B1112432A-10-10	35 kPa	1"-14 UNS	7/8"-14 UNF	44.2	ø30	27		
20	3/4"	-12	Q2B1112432A-12-12	35 kPa	1.3/16"-12 UN	1.1/16"-12 UN	48.2	ø35,5	32		
25	1"	-16	Q2B1112432A-16-16	35 kPa	1.7/16"-12 UN	1.5/16"-12 UN	51.8	ø42	38		



Q2B1112525

MALE-MALE, COMPACT
INLET: JIC MALE (37° CONE)
ISO 8434-2 / SAE J514
OUTLET: JIC MALE (37° CONE)
ISO 8434-2 / SAE J514
MATERIAL: STEEL
SEALS: NBR (NITRILE)

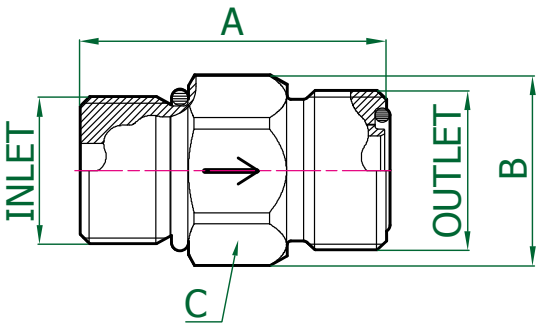
NOMINAL SIZE			PART NUMBER	OPENING PRESSURE	THREADS		DIMENSIONS mm				
DN	inch	Dash			INLET	OUTLET	A	B	C	D	E
6	1/4"	-4	Q2B1112525A-04-04	35 kPa	7/16"-20 UNF	7/16"-20 UNF	39.2	ø18,8	17		
10	3/8"	-6	Q2B1112525A-06-06	35 kPa	9/16"-18 UNF	9/16"-18 UNF	39.4	ø21	19		
12.5	1/2"	-8	Q2B1112525A-08-08	35 kPa	3/4"-16 UNF	3/4"-16 UNF	46.1	ø24,5	22		
12.5	1/2"	-8	Q2B1112525A-10-10	35 kPa	7/8"-14 UNF	7/8"-14 UNF	51.3	ø30	27		
20	3/4"	-12	Q2B1112525A-12-12	35 kPa	1.1/16"-12 UN	1.1/16"-12 UN	56.5	ø35,5	32		
25	1"	-16	Q2B1112525A-16-16	35 kPa	1.5/16"-12 UN	1.5/16"-12 UN	62	ø42	38		



Q2B1112532

MALE-MALE, COMPACT
INLET: JIC MALE (37° CONE)
ISO 8434-2 / SAE J514
OUTLET: MALE O'RING BOSS
(NON-ADJUSTABLE HEAVY) SAE J1926-2
MATERIAL: STEEL
SEALS: NBR (NITRILE)

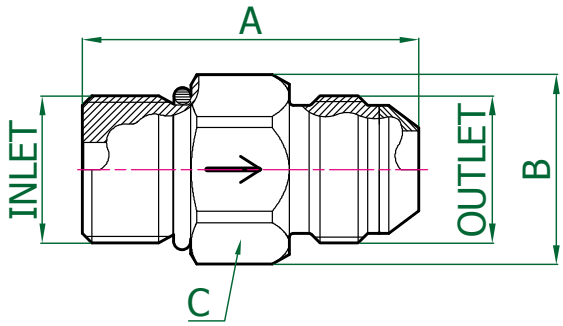
NOMINAL SIZE			PART NUMBER	OPENING PRESSURE	THREADS		DIMENSIONS mm				
DN	inch	Dash			INLET	OUTLET	A	B	C	D	E
10	3/8"	-6	Q2B1112532A-06-06	35 kPa	9/16"-18 UNF	9/16"-18 UNF	37.3	ø21	19		
12.5	1/2"	-8	Q2B1112532A-08-08	35 kPa	3/4"-16 UNF	3/4"-16 UNF	43.4	ø24,5	22		
12.5	1/2"	-8	Q2B1112532A-10-10	35 kPa	7/8"-14 UNF	7/8"-14 UNF	48	ø30	27		
20	3/4"	-12	Q2B1112532A-12-12	35 kPa	1.1/16"-12 UN	1.1/16"-12 UN	53.1	ø35,5	32		
25	1"	-16	Q2B1112532A-16-16	35 kPa	1.5/16"-12 UN	1.5/16"-12 UN	57.4	ø42	38		



Q2B1113224

MALE-MALE, COMPACT
INLET: MALE O'RING BOSS (NON-ADJUSTABLE HEAVY) SAE J1926-2
OUTLET: ORFS MALE ISO 8434-3 / SAE J1453
MATERIAL: STEEL
SEALS: NBR (NITRILE)

NOMINAL SIZE			PART NUMBER	OPENING PRESSURE	THREADS		DIMENSIONS mm				
DN	inch	Dash			INLET	OUTLET	A	B	C	D	E
6	1/4"	-4	Q2B1113224A-04-04	35 kPa	7/16"-20 UNF	9/16"-18 UNF	32.2	ø18,8	17		
10	3/8"	-6	Q2B1113224A-06-06	35 kPa	9/16"-18 UNF	11/16"-16 UN	34.4	ø21	19		
12.5	1/2"	-8	Q2B1113224A-08-08	35 kPa	3/4"-16 UNF	13/16"-16 UN	39.5	ø24,5	22		
12.5	1/2"	-8	Q2B1113224A-10-10	35 kPa	7/8"-14 UNF	1"-14 UNS	44.2	ø30	27		
20	3/4"	-12	Q2B1113224A-12-12	35 kPa	1.1/16"-12 UN	1.3/16"-12 UN	48.2	ø35,5	32		
25	1"	-16	Q2B1113224A-16-16	35 kPa	1.5/16"-12 UN	1.7/16"-12 UN	51.8	ø42	38		



Q2B1113225

MALE-MALE, COMPACT
INLET: MALE O'RING BOSS (NON-ADJUSTABLE HEAVY) SAE J1926-2
OUTLET: JIC MALE (37° CONE) ISO 8434-2 / SAE J514
MATERIAL: STEEL
SEALS: NBR (NITRILE)

NOMINAL SIZE			PART NUMBER	OPENING PRESSURE	THREADS		DIMENSIONS mm				
DN	inch	Dash			INLET	OUTLET	A	B	C	D	E
6	1/4"	-4	Q2B1113225A-04-04	35 kPa	7/16"-20 UNF	7/16"-20 UNF	36.2	ø18,8	17		
10	3/8"	-6	Q2B1113225A-06-06	35 kPa	9/16"-18 UNF	9/16"-18 UNF	37.3	ø21	19		
12.5	1/2"	-8	Q2B1113225A-08-08	35 kPa	3/4"-16 UNF	3/4"-16 UNF	43.4	ø24,5	22		
12.5	1/2"	-8	Q2B1113225A-10-10	35 kPa	7/8"-14 UNF	7/8"-14 UNF	48	ø30	27		
20	3/4"	-12	Q2B1113225A-12-12	35 kPa	1.1/16"-12 UN	1.1/16"-12 UN	53.1	ø35,5	32		
25	1"	-16	Q2B1113225A-16-16	35 kPa	1.5/16"-12 UN	1.5/16"-12 UN	57.4	ø42	38		



BI-DIRECTIONAL CHECK VALVES

TECHNICAL DATA

SIZE			WORKING PRESSURE (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		MINIMUM BURST PRESSURE	
DN	inch	Dash	MPa	PSI	l/min	US GPM	MPa	PSI
10	3/8"	06	35	5075	39	10	150	21750
12.5	1/2"	08	35	5075	84	22	140	20300
19	3/4"	-12	35	5075	119	31	140	20300

PRODUCT DESCRIPTION

- Manufactured from high-quality materials
- Robust design
- Large range of termination end options available
- A-B cracking pressures of 500kPa and 800kPa available
- B-A cracking pressure of 35kPa

MATERIAL

Steel, with springs in C98 high-carbon steel. Seals in NBR and back-up ring in PTFE.

WORKING TEMPERATURE

-22°F up to +230°F (-30°C up to +110°C)

SAFETY FACTOR

4:1 for dynamic pressures

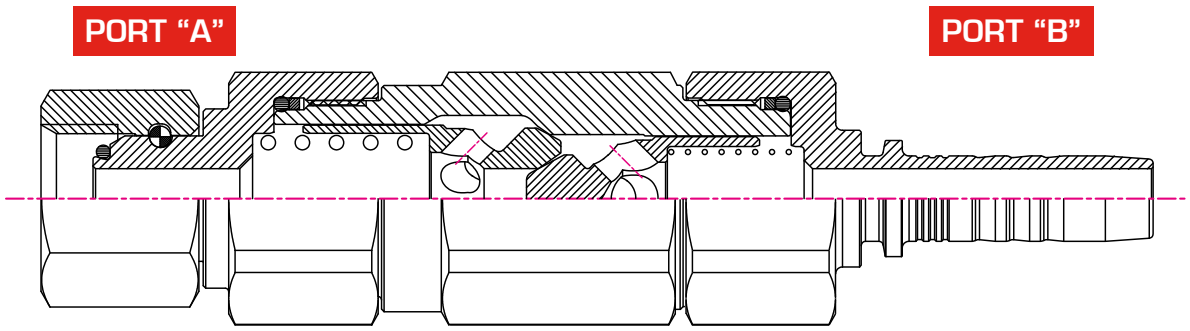
IMPULSE PRESSURES

1,000,000 cycles at 120% of the rated one (freq. 1Hz)

TEST SPECIFICATIONS

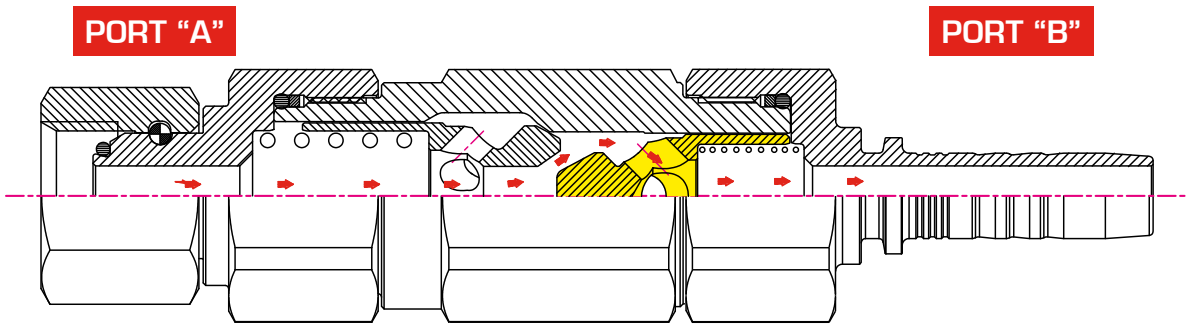
ISO 18869

How Do Manuli Bi-Directional Check Valves Work?



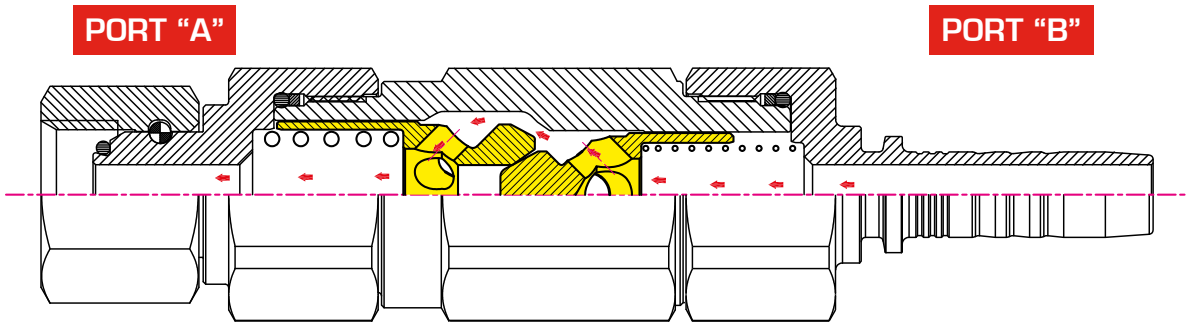
ZERO FLOW

In it's zero flow state the bi-directional check valve is sealed in both flow directions, meaning that no fluid can cross from port "A" to port "B" or vice versa.



A – B FLOW ≥0.35 BAR

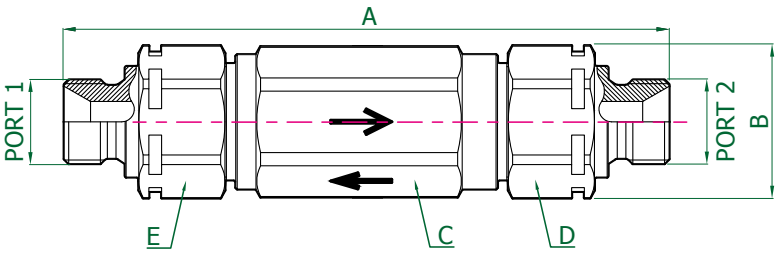
When the pressure of the fluid flowing from port "A" to port "B" exceeds the specified valve rating, "X" kPa, the highlighted valve assembly is similarly forced out of the way to allow the fluid to flow.



B – A FLOW ≥X BAR

When the pressure of the fluid flowing from port "B" to port "A" exceeds 35 kPa the highlighted valve assembly is forced out of the way, thus allowing the fluid to flow.

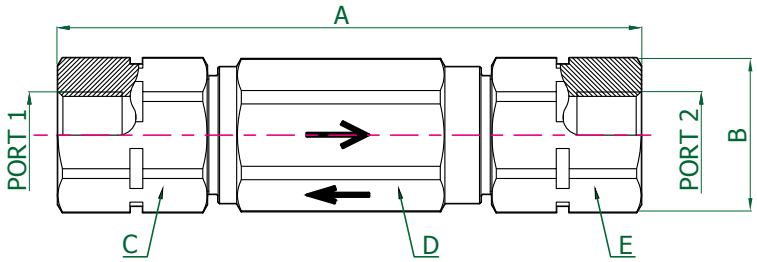
Q2D1110505



MALE-MALE, BI-DIRECTIONAL
INLET: BSP MALE 60° CONE SEAT
BS5200 / ISO 8434-6
OUTLET: BSP MALE 60° CONE SEAT
BS5200 / ISO 8434-6
MATERIAL: STEEL
SEALS: NBR (NITRILE)

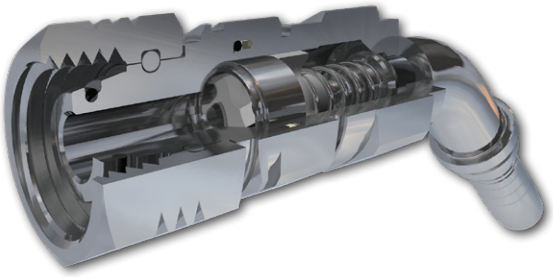
NOMINAL SIZE			PART NUMBER	OPENING PRESSURE		THREADS		DIMENSIONS mm				
DN	inch	Dash		1 -> 2	2 -> 1	INLET	OUTLET	A	B	C	D	E
10	3/8"	-6	Q2D1110505N-06-06A	500 kPa	35 kPa	3/8"	3/8"	110.6	Ø30	27	27	27
10	3/8"	-6	Q2D1110505R-06-06A	800 kPa	35 kPa	3/8"	3/8"	110.6	Ø30	27	27	27
12.5	1/2"	-8	Q2D1110505N-08-08A	500 kPa	35 kPa	1/2"	1/2"	149.8	Ø38	34	34	34
12.5	1/2"	-8	Q2D1110505R-08-08A	800 kPa	35 kPa	1/2"	1/2"	149.8	Ø38	34	34	34
19	3/4"	-12	Q2D1110505N-12-12A	500 kPa	35 kPa	3/4"	3/4"	173.8	Ø45	41	41	41
19	3/4"	-12	Q2D1110505R-12-12A	800 kPa	35 kPa	3/4"	3/4"	173.8	Ø45	41	41	41

Q2D2110404



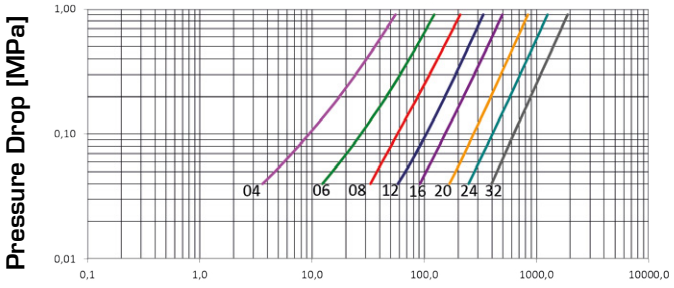
FEMALE-FEMALE, BI-DIRECTIONAL
INLET: BSP FIXED FEMALE
DIN 3852-2 'FORM X' / ISO 1179-1
OUTLET: BSP FIXED FEMALE
DIN 3852-2 'FORM X' / ISO 1179-1
MATERIAL: STEEL
SEALS: NBR (NITRILE)

NOMINAL SIZE			PART NUMBER	OPENING PRESSURE		THREADS		DIMENSIONS mm				
DN	inch	Dash		1 -> 2	2 -> 1	INLET	OUTLET	A	B	C	D	E
10	3/8"	-06	Q2D2110404N-06-06A	500 kPa	35 kPa	3/8"	3/8"	105.2	Ø30	27	27	27
10	3/8"	-06	Q2D2110404R-06-06A	800 kPa	35 kPa	3/8"	3/8"	105.2	Ø30	27	27	27
12.5	1/2"	-08	Q2D2110404N-08-08A	500 kPa	35 kPa	1/2"	1/2"	139.4	Ø38	34	34	34
12.5	1/2"	-08	Q2D2110404R-08-08A	800 kPa	35 kPa	1/2"	1/2"	139.4	Ø38	34	34	34
19	3/4"	-12	Q2D2110404N-12-12A	500 kPa	35 kPa	3/4"	3/4"	163.4	Ø45	41	41	41
19	3/4"	-12	Q2D2110404R-12-12A	800 kPa	35 kPa	3/4"	3/4"	163.4	Ø45	41	41	41

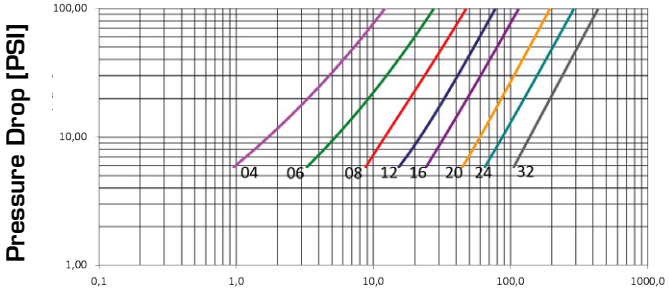


STANDARD CHECK VALVES DHI (DIRECT HOSE INTERFACE)

Pressure Drop



Pressure Drop



TECHNICAL DATA

SIZE			WORKING PRESSURE (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		MINIMUM BURST PRESSURE	
DN	inch	Dash	MPa	PSI	l/min	US GPM	MPa	PSI
6	1/4"	04	45	6525	18	4.8	180	26100
10	3/8"	06	35	5075	46	12.2	140	20300
12	1/2"	08	35	5075	88	23.2	140	20300
19	3/4"	12	35	5075	153	40.4	140	20300
25	1"	16	35	5075	225	59.4	140	20300
31	1.1/4"	20	35	5075	394	104.1	140	20300
38	1.1/2"	24	35	5075	580	153.2	140	20300
51	2"	32	35	5075	890	235.1	140	20300

PRODUCT DESCRIPTION

- Manufactured from high-quality materials
- Robust design
- Large range of termination end options available
- Large range of cracking-pressures available
- Direct-to-hose connection minimises potential leak points

MATERIAL

Steel, with springs in C98 high-carbon steel. Seals in NBR and back-up ring in PTFE.

WORKING TEMPERATURE

-22°F up to +230°F (-30°C up to +110°C)

SAFETY FACTOR

4:1 for dynamic pressures

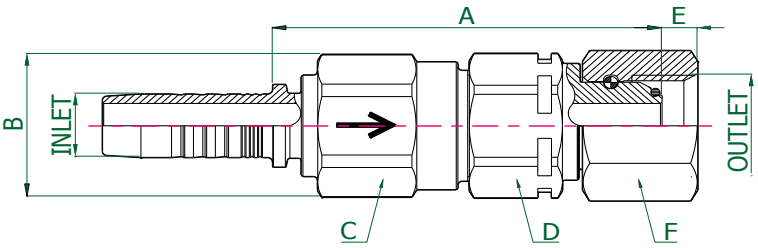
IMPULSE PRESSURES

1,000,000 cycles at 120% of the rated one (freq. 1Hz)

TEST SPECIFICATIONS

ISO 18869

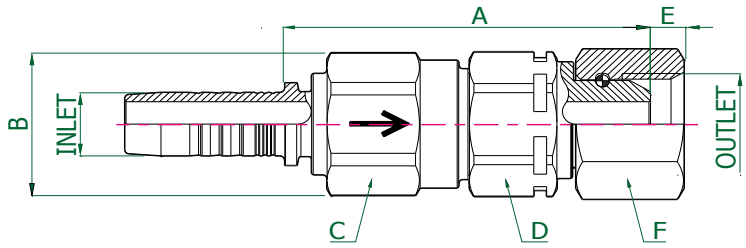
Q2A311M108



TAIL-FEMALE, STANDARD
INLET: MULTIFIT TAIL, STRAIGHT
OUTLET: BSP O-RING FEMALE
60° CONE BS5200 / ISO 8434-6
MATERIAL: STEEL
SEALS: NBR (NITRILE)

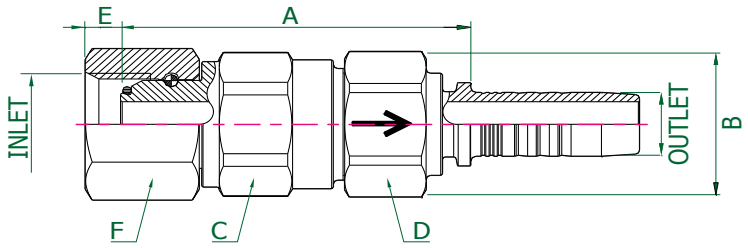
NOMINAL SIZE			PART NUMBER	OPENING PRESSURE	THREADS		DIMENSIONS mm					
DN	inch	Dash			INLET	OUTLET	A	B	C	D	E	F
6	1/4"	-4	Q2A311M108A-04-04	35 kPa	1/4"	1/4"	50.2	Ø21	19	19	4.1	19
10	3/8"	-6	Q2A311M108A-06-06	35 kPa	3/8"	3/8"	62.3	Ø24,2	22	22	5.9	22
12.5	1/2"	-8	Q2A311M108A-08-08	35 kPa	1/2"	1/2"	70.9	Ø30	27	27	6.5	27
19	3/4"	-12	Q2A311M108A-12-12	35 kPa	3/4"	3/4"	80.6	Ø38	34	34	8.5	32
25	1"	-16	Q2A311M108A-16-16	35 kPa	1"	1"	86.9	Ø45	41	41	10.6	38

Q2A311M105



TAIL-FEMALE, STANDARD
INLET: MULTIFIT TAIL, STRAIGHT
OUTLET: BSP FEMALE 60° CONE
BS5200 / ISO 8434-6
MATERIAL: STEEL
SEALS: NBR (NITRILE)

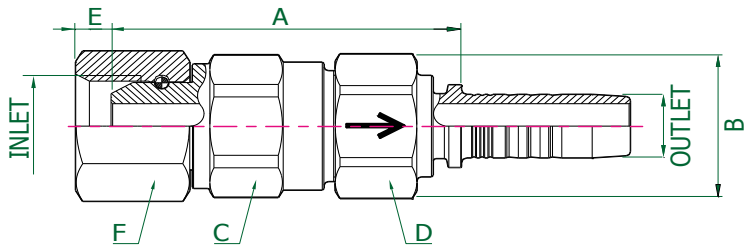
NOMINAL SIZE			PART NUMBER	OPENING PRESSURE	THREADS		DIMENSIONS mm					
DN	inch	Dash			INLET	OUTLET	A	B	C	D	E	F
31	1-1/4"	-20	Q2A311M105A-20-20	35 kPa	1-1/4"	1-1/4"	111.2	Ø55	50	50	10.5	50
38	1-1/2"	-24	Q2A311M105A-24-24	35 kPa	1-1/2"	1-1/2"	126	Ø66	60	60	12.5	60



Q2A41108M1

FEMALE-TAIL, STANDARD
INLET: BSP O-RING FEMALE
60° CONE BS5200 / ISO 8434-6
OUTLET: MULTIFIT TAIL, STRAIGHT
MATERIAL: STEEL
SEALS: NBR (NITRILE)

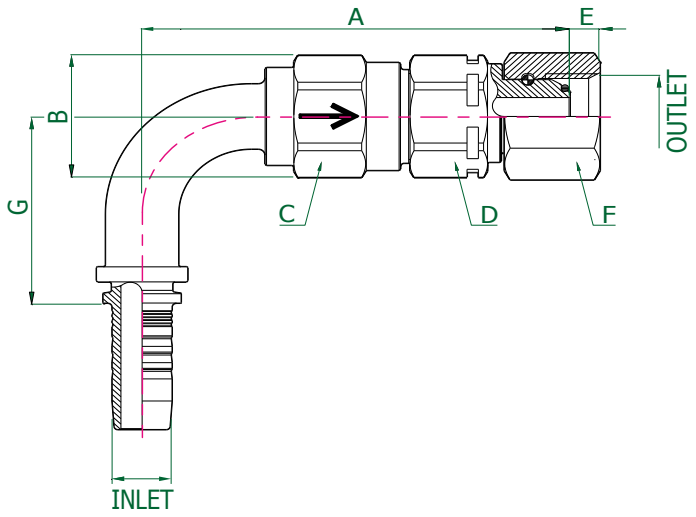
NOMINAL SIZE			PART NUMBER	OPENING PRESSURE	THREADS		DIMENSIONS mm					
DN	inch	Dash			INLET	OUTLET	A	B	C	D	E	F
6	1/4"	-4	Q2A41108M1A-04-04	35 kPa	1/4"	1/4"	48	Ø21	19	19	4.1	19
10	3/8"	-6	Q2A41108M1A-06-06	35 kPa	3/8"	3/8"	57.3	Ø24,2	22	22	5.9	22
12.5	1/2"	-8	Q2A41108M1A-08-08	35 kPa	1/2"	1/2"	64.3	Ø30	27	27	6.5	27
19	3/4"	-12	Q2A41108M1A-12-12	35 kPa	3/4"	3/4"	73.4	Ø38	34	34	8.5	32
25	1"	-16	Q2A41108M1A-16-16	35 kPa	1"	1"	84.4	Ø45	41	41	10.6	38



Q2A41105M1

FEMALE-TAIL, STANDARD
INLET: BSP FEMALE 60° CONE
BS5200 / ISO 8434-6
OUTLET: MULTIFIT TAIL, STRAIGHT
MATERIAL: STEEL
SEALS: NBR (NITRILE)

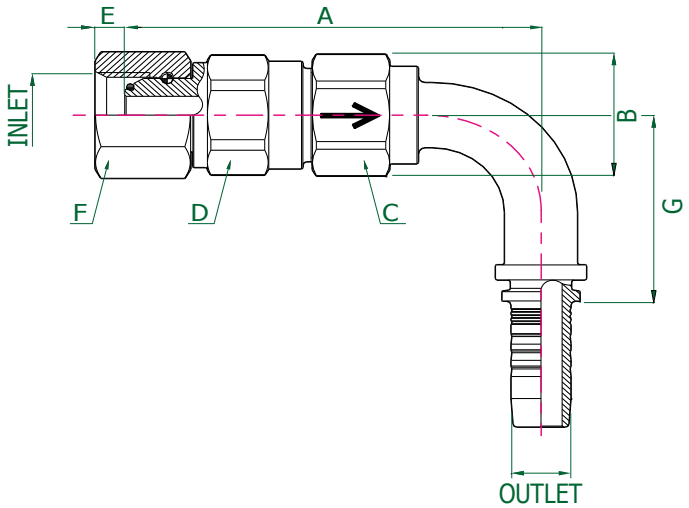
NOMINAL SIZE			PART NUMBER	OPENING PRESSURE	THREADS		DIMENSIONS mm					
DN	inch	Dash			INLET	OUTLET	A	B	C	D	E	F
31	1-1/4"	-20	Q2A41105M1A-20-20	35 kPa	1-1/4"	1-1/4"	111.2	Ø55	50	50	10.5	50
38	1-1/2"	-24	Q2A41105M1A-24-24	35 kPa	1-1/2"	1-1/2"	126	Ø66	60	60	12.5	60



Q2A311M908

TAIL-FEMALE, STANDARD
INLET: MULTIFIT TAIL, 90° SWEPT
OUTLET: BSP O-RING FEMALE
60° CONE BS5200 / ISO 8434-6
MATERIAL: STEEL
SEALS: NBR (NITRILE)

NOMINAL SIZE			PART NUMBER	OPENING PRESSURE	THREADS		DIMENSIONS mm						
DN	inch	Dash			INLET	OUTLET	A	B	C	D	E	F	G
6	1/4"	-4	Q2A311M908A-04-04	35 kPa	1/4"	1/4"	64.8	Ø21	19	19	4.1	19	30.1
10	3/8"	-6	Q2A311M908A-06-06	35 kPa	3/8"	3/8"	79.9	Ø24	22	22	5.9	22	37
12.5	1/2"	-8	Q2A311M908A-08-08	35 kPa	1/2"	1/2"	94.5	Ø30	27	27	6.5	27	45.9
19	3/4"	-12	Q2A311M908A-12-12	35 kPa	3/4"	3/4"	115.8	Ø38	34	34	8.5	32	62.5
25	1"	-16	Q2A311M908A-16-16	35 kPa	1"	1"	132	Ø45	41	41	10.6	38	70.6



Q2A41108M9

TAIL-FEMALE, STANDARD
INLET: BSP O-RING FEMALE
60° CONE BS5200 / ISO 8434-6
OUTLET: MULTIFIT TAIL, 90° SWEPT
MATERIAL: STEEL
SEALS: NBR (NITRILE)

NOMINAL SIZE			PART NUMBER	OPENING PRESSURE	THREADS		DIMENSIONS mm						
DN	inch	Dash			INLET	OUTLET	A	B	C	D	E	F	G
6	1/4"	-4	Q2A41108M9A-04-04	35 kPa	1/4"	1/4"	62.6	Ø21	19	19	4.1	19	30.1
10	3/8"	-6	Q2A41108M9A-06-06	35 kPa	3/8"	3/8"	74.9	Ø24	22	22	5.9	22	37
12.5	1/2"	-8	Q2A41108M9A-08-08	35 kPa	1/2"	1/2"	88	Ø30	27	27	6.5	27	45.9
19	3/4"	-12	Q2A41108M9A-12-12	35 kPa	3/4"	3/4"	108.6	Ø38	34	34	8.5	32	62.5
25	1"	-16	Q2A41108M9A-16-16	35 kPa	1"	1"	129.5	Ø45	41	41	10.6	38	70.6



BI-DIRECTIONAL CHECK VALVES DHI (DIRECT HOSE INTERFACE)

TECHNICAL DATA

SIZE			WORKING PRESSURE (Dynamic)		RATED FLOW at 0.2 MPa of pressure drop		MINIMUM BURST PRESSURE	
DN	inch	Dash	MPa	PSI	l/min	US GPM	MPa	PSI
10	3/8"	06	35	5075	39	10	150	21750
12.5	1/2"	08	35	5075	84	22	140	20300
19	3/4”	-12	35	5075	119	31	140	20300

PRODUCT DESCRIPTION

- Manufactured from high-quality materials
- Robust design
- Large range of termination end options available
- A-B cracking pressures of 500kPa and 800kPa available
- B-A cracking pressure of 35kPa
- Direct-to-hose connection minimises potential leak points

MATERIAL

Steel, with springs in C98 high-carbon steel. Seals in NBR and back-up ring in PTFE.

WORKING TEMPERATURE

-22°F up to +230°F (-30°C up to +110°C)

SAFETY FACTOR

4:1 for dynamic pressures

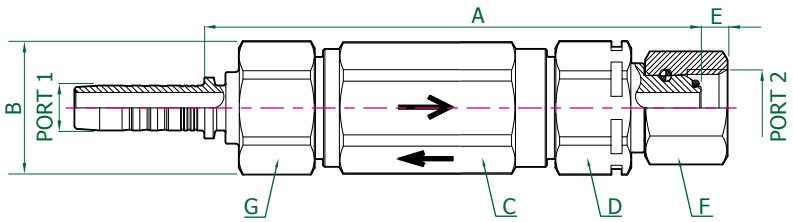
IMPULSE PRESSURES

1,000,000 cycles at 120% of the rated one (freq. 1Hz)

TEST SPECIFICATIONS

ISO 18869

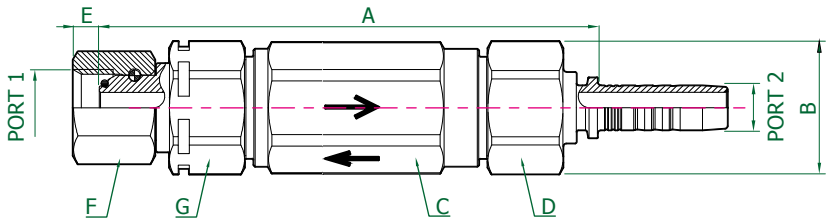
Q2D311M108



TAIL-FEMALE, BI-DIRECTIONAL
INLET: MULTIFIT TAIL, STRAIGHT
OUTLET: BSP O-RING FEMALE
60° CONE BS5200 / ISO 8434-6
MATERIAL: STEEL
SEALS: NBR (NITRILE)

NOMINAL SIZE			PART NUMBER	OPENING PRESSURE		THREADS		DIMENSIONS mm						
DN	inch	Dash		1 -> 2	2 -> 1	INLET	OUTLET	A	B	C	D	E	F	G
10	3/8"	-6	Q2D311M108N-06-06A	500 kPa	35 kPa	3/8"	3/8"	104.9	Ø30	27	27	6	22	27
10	3/8"	-6	Q2D311M108R-06-06A	800 kPa	35 kPa	3/8"	3/8"	104.9	Ø30	27	27	6	22	27
12.5	1/2"	-8	Q2D311M108N-08-08A	500 kPa	35 kPa	1/2"	1/2"	139.8	Ø38	34	34	6.3	27	34
12.5	1/2"	-8	Q2D311M108R-08-08A	800 kPa	35 kPa	1/2"	1/2"	139.8	Ø38	34	34	6.3	27	34
19	3/4"	-12	Q2D311M108N-12-12A	500 kPa	35 kPa	3/4"	3/4"	163.7	Ø45	41	41	8.5	32	41
19	3/4"	-12	Q2D311M108R-12-12A	800 kPa	35 kPa	3/4"	3/4"	163.7	Ø45	41	41	8.5	32	41

Q2D41108M1

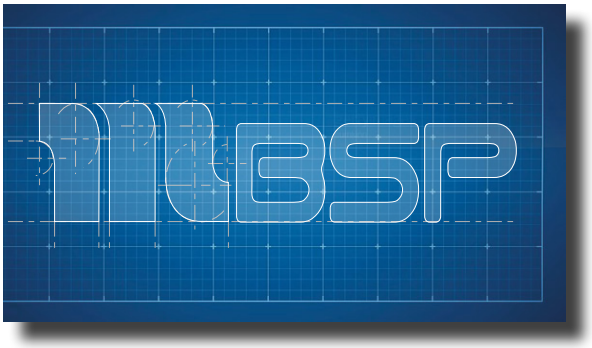


FEMALE-TAIL, BI-DIRECTIONAL
INLET: BSP O-RING FEMALE
60° CONE BS5200 / ISO 8434-6
OUTLET: MULTIFIT TAIL, STRAIGHT
MATERIAL: STEEL
SEALS: NBR (NITRILE)

NOMINAL SIZE			PART NUMBER	OPENING PRESSURE		THREADS		DIMENSIONS mm						
DN	inch	Dash		1 -> 2	2 -> 1	INLET	OUTLET	A	B	C	D	E	F	G
10	3/8"	-6	Q2D41108M1N-06-06A	500 kPa	35 kPa	3/8"	3/8"	104.9	Ø30	27	27	6	22	27
10	3/8"	-6	Q2D41108M1R-06-06A	800 kPa	35 kPa	3/8"	3/8"	104.9	Ø30	27	27	6	22	27
12.5	1/2"	-8	Q2D41108M1N-08-08A	500 kPa	35 kPa	1/2"	1/2"	139.8	Ø38	34	34	6.3	27	34
12.5	1/2"	-8	Q2D41108M1R-08-08A	800 kPa	35 kPa	1/2"	1/2"	139.8	Ø38	34	34	6.3	27	34
19	3/4"	-12	Q2D41108M1N-12-12A	500 kPa	35 kPa	3/4"	3/4"	173.8	Ø45	41	41	8.5	32	41
19	3/4"	-12	Q2D41108M1R-12-12A	800 kPa	35 kPa	3/4"	3/4"	173.8	Ø45	41	41	8.5	32	41

Bespoke solutions to unique problems

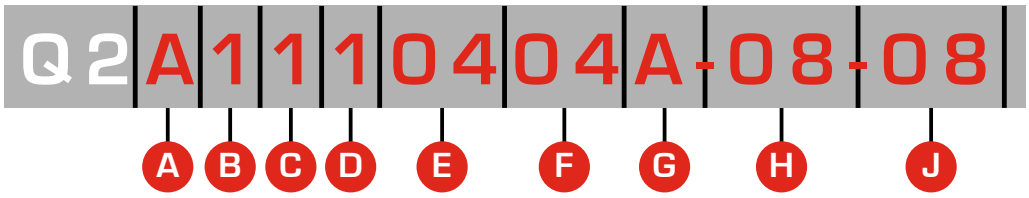
Hydraulics applications are so many and varied that it would be pretty much impossible to develop industrialised products for every possible situation. However, at Manuli Hydraulics we are fully prepared to meet any application challenge that our OEM partners can present us with, which is why we offer our ***Bespoke Solutions Program (BSP)****.*



The BSP is just one way that Manuli Hydraulics provides an added value service to our OEM partners. Manuli Hydraulics is structured in such a way that we can tailor solutions to the specific requirements of our customers in a way that our competitors never could. We are small enough to be agile and responsive, yet large enough to have the design and manufacturing capabilities to produce bespoke products at a reasonable price. Used by some of the largest and most respected OEMs around the world, the Manuli Bespoke Solutions Program means that you never have to compromise on your hydraulic system design again.

How to specify your bespoke check valve

Specifying the required properties of your check valve is simply a matter of constructing an appropriate part number. The following pages explain how to construct the part number using the Manuli Hydraulics part numbering system.



A - CHECK VALVE TYPE *- See Table 1*

B - INPUT / OUTPUT CONFIGURATION *- See Table 2*

C - VALVE MATERIAL *- See Table 3*

D - SEAL MATERIAL *- See Table 4*

E - INPUT TERMINATION END TYPE *- See Table 5*

F - OUTPUT TERMINATION END TYPE *- See Table 5*

G - CRACK PRESSURE *- See Table 6*

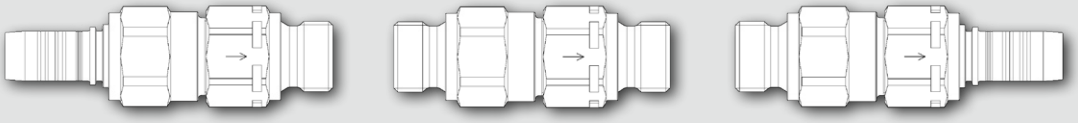
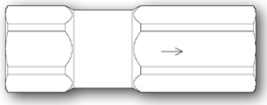
H - INPUT TUBE SIZE *- See Table 7*

J - OUTPUT TUBE SIZE *- See Table 7*

1 - CHECK VALVE TYPE

Digit	Check Valve Type
A	Standard
B	Compact
C	Calibrated
D	Bi-directional

2 - INLET / OUTLET CONFIGURATION

Digit	INLET	OUTLET
1	Male / Tail*	Male / Tail*
		
2	Female	Female
		
3	Male / Tail*	Female
		
4	Female	Male / Tail*
		

** Use Table 5a for male termination ends, and Table 5b for DHI tails*

3 - VALVE MATERIAL

Digit	Material
1	Steel
2	AISI 316
3	AISI 303
4	Brass
5	Aluminium

4 - SEAL MATERIAL

Digit	INLET
0	None
1	NBR (Nitrile)
2	HNBR
3	FKM (Viton, FPM)
4	CR (Neoprene)
5	EPDM
6	FFPM (Kalrez)
7	PTFE
8	VMQ (Silicone Rubber)
9	AU (Polyurethane)

5 - INLET / OUTLET TERMINATION END TYPE

Digit	Male Termination End	Female Termination End
01	BSP Male DIN 3852-11 - ISO 1179-2 Heavy Duty “form E”	Fixed Female GAS JIS B 2351 “type O”
02	BSP Male Tapered Thread Long	BSP Female Tapered
04	BSP Male Bulkhead	BSP Fixed Female DIN 3852-2 “form X” / ISO 1179-1
05	BSP Male 60° cone seat BS5200 / ISO 8434-6	BSP Female 60° cone BS5200 / ISO 8434-6
08	Metric Bolt DIN 7643	BSP O-Ring Female 60° cone BS5200 / ISO 8434-6
11	Metric male 24° cone seat light type DIN 3861 / ISO 8434-1	-
12	Metric male 24° cone seat heavy type DIN 3861 / ISO 8434-1	Metric Female 24° cone O'Ring heavy type DIN 3865 / ISO 8434-1 Long Drop
14	Metric Male DIN 3852-11 “form E” b/ ISO 9974-2	Metric Fixed Female DIN 3852-1 “form X” and “form Y”
19	Metric Male ISO 6149-2 / DIN 3852-3 “form F” (only for Fittings and Q.Safe) Metric Male with Retaining Ring (Adjustable + Non-Adjustable Heavy) ISO 9974 port compatible (only for Adaptors)	Metric Fixed Female ISO 6149-1
23	JIC Bulkhead male 37° cone ISO 8434-2 / SAE J514	-
24	ORFS male ISO 8434-3 / SAE J1453	ORFS female ISO 8434-3 / SAE J1453
25	JIC male (37° cone) ISO 8434-2 / SAE J514	JIC female (37° cone seat) ISO 8434-2 / SAE J514
27	ORFS Bulkhead male ISO 8434-3 / SAE J1453	JIC female double hexagon 37° cone seat
28	NPTF Male 60° cone seat SAE J476a	NPSM Swivel Female 60° cone SAE J514
30	Male O'Ring Boss type SAE J1926-3	Female Port SAE J1926-1
32	Male O'Ring Boss (Adjustable + Non-Adjustable Heavy) SAE J1926-2	-
34	API Male	NPTF Fixed Female SAE J476a
37	Metric male 60° cone superlight DIN 3863 Bulkhead	Flange ISO/SAE 62 Plus / Flange (A/C)
77	DIN Bulkhead Male 24° cone Light type ISO 8434-1	ASME B16.5 Ring Joint Type Flange
82	French GAZ Bulkhead metric male 24° cone seat	Staple Lock Swivel Female
87	DIN Bulkhead Male 24° cone Heavy type ISO 8434-1	ASME B16.5 FLANGE / SDB compressor (A/C)

Table 5a - Termination End Options

Digit	DHI Tail Type
M1	Multifit tail, straight
M4	Multifit tail, 45° swept
M9	Multifit Plus tail, 90° swept
I1	Interlock Plus tail, straight
I4	Interlock Plus tail, 45° swept
I9	Interlock Plus tail, 90° swept
S1	Spiralfit tail, straight
S4	Spiralfit tail, 45° swept
S9	Spiralfit tail, 90° swept

Table 5b - DHI Tail Options

6 - CRACK PRESSURE

Digit	Pressure (kPa)	Pressure (psi)
A	35	5.1
B	10	1.5
C	20	2.9
D	50	7.3
E	100	14.5
F	150	21.8
G	200	29.0
H	250	36.3
J	300	43.5
K	350	50.8
L	400	58.0
M	450	65.3
N	500	72.5
P	600	87.0
Q	700	101.5
R	800	116.0
S	900	130.5
T	1000	145.0
X	Without Spring	

7 - INLET / OUTLET TUBE SIZE

Digit	DN	Inch	Dash
04	6	1/4”	-04
06	10	3/8”	-06
08	12	1/2”	-08
10	16	5/8”	-10
12	19	3/4”	-12
16	25	1”	-16
20	31	1-1/4”	-20
22	35	1-3/8”	-22
24	38	1-1/2”	-24
32	51	2”	-32
36	57	2-1/4”	-36

manuli®
HYDRAULICS



ASSEMBLY MACHINES

INTRODUCTION

Manuli assembling machines are part of our integrated product range and are designed according to high quality standards and optimised through Manuli's extensive experience in the hydraulic market.

Manuli assembling machines are recommended for a high-performance, safe hose assembling procedure.

All Manuli assembling machines are tested and approved in both laboratory and field validation exercises.

The following index offers a guideline to aid selection of the proper machine with reference to the applications and performance requested.

Special machines (not included in this catalogue) are available upon request, as well as original spare parts.

Manuli hose and fittings products must be assembled in strict accordance with Manuli instructions and limitations.

Don't mix and match: always use Manuli original couplings and hoses.

Manuli hose, couplings and assembling machines are tested as an effective and reliable system. The use of different products and machines may cause premature hose failures, property damage, serious injury or death.

MANULI MAKES NO WARRANTIES, EXPRESS OR IMPLIED, AND ASSUMES NO RESPONSIBILITY OR LIABILITY FOR ANY LOSS OR DAMAGE, WHETHER DIRECT, INDIRECT, CONSEQUENTIAL OR INCIDENTAL WHICH MIGHT ARISE OUT OF CRIMPED HOSE ASSEMBLIES NOT PRODUCED FROM GENUINE MANULI HOSE FITTINGS, HOSE AND EQUIPMENT, IN CONFORMANCE WITH MANULI PROCESS SPECIFICATIONS FOR EACH SPECIFIC HOSE ASSEMBLY.

The latest edition of the Manuli crimping booklet is the only official guide to selecting proper hose and fittings combinations and for determining crimping compatibility and parameters.

CRIMPING MACHINES EVO RANGE

Manuli is always on the lookout for ways to improve both the efficiency and the quality of new and existing production operations.

As a market leader in assembly machines, we wanted to offer new crimping machines to improve the operator's comfort, giving more flexibility when assembling hoses. This led to the creation of the new EVO crimping machines.

These machines combine the robustness required for harsh environments with the reliability needed for busy workshops. Their compact and ergonomic design, along with the ease of set up and maintenance, make them suitable for a variety of applications.

This extensive range is highly adaptable, with various options available allowing users to customise their machine according to their specific needs.

- Extensive range for both industrial and hydraulic hoses
- 137, 240, 350 and 420 tonnes variants
- From 3/16 up to 4" hose diameter
- 4 kW or 5,5 kW motor for 3Ph

- Bluetooth connection
- SC panel - Smart Control panel. Daily counter. Semi-automatic opening
- SCE panel - electronic micrometer with the ability to save up to 25 configuration
- Caliper connected and numerical display of the crimping range on SCE

- Robust
- Ease of maintenance (foam pads and dust collector)
- Compatibility with all tensions (different frequencies)

- Compact and ergonomic design
- Easy set up
- Various options available to suit our customers' needs and workshops

manuli® HYDRAULICS

	MODEL	MACHINE TYPE	APPLICATION SECTOR	MACHINE PERFORMANCE	PAGE
CUTTING	M 22 CUT / MV 22 CUT	Benchtop	Aftermarket service	Medium size capacity	533
	M 30 CUT E	Benchtop cutting machine, optional skiving	Aftermarket service	Wide hose range capacity	534
	M 30 CUT & SKIVE	Benchtop: integrated cutting & skiving	Aftermarket service	Wide hose range capacity	535
	M 30 CUT L	Stand type cutting machine	Aftermarket service (smoke absorption integrated)	Wide hose range capacity	536
	M 55 CUT	Stand type cutting machine	Aftermarket service and small-medium OEM workshop	Whole hose range capacity	537
	M 75 CUT	Stand type cutting machine	Production unit	Whole hose range capacity	538
	M 90 CUT	Stand type cutting machine	Production unit	Whole hose range capacity	539
SKIVING	MH SKY	Manual, portable skiving tool	Aftermarket service	Wide hose range capacity	541
	M 50 SKY	Benchtop, skiving	Aftermarket service	Wide hose range capacity	542
	M 205 SKY	Stand type skive machine	Production unit	Whole hose range capacity	543
INSERT PUSHING	M 1500 INS	Benchtop coupling inserter	Production unit	Whole hose range capacity	546
	M 2000 INS	Benchtop coupling inserter	Production unit	Whole hose range capacity	547
MARKING	M 50 MARK	Benchtop, ferrules marking	Aftermarket service	Wide hose range capacity	548
CRIMPING	MHP 80	Hand pump, portable	On site repair	Manual machine for small sizes	551
	MHP 110	Hand pump, portable	On site repair	Manual machine for small sizes	552
	MHP 137	Hand pump, portable	On site repair	Manual machine for small/medium sizes	553
	MRB 137 EVO R	Vertical Benchtop	Aftermarket service	Medium crimping force, small/medium sizes, limited productivity	554
	MB 137 EVO	Benchtop	Aftermarket service	Medium crimping force, small/medium sizes, limited productivity	555
	MB 240 EVO	Benchtop	Aftermarket service	Medium crimping force, medium productivity	557
	MB 350 EVO / MB 350 EVO L	Benchtop: very high crimp force	Aftermarket service	High crimping force, medium productivity, large size	559
	GOLDENCRIMP 420 EVO	Benchtop	Field maintenance shops, wide hose range	Very high crimping force, tough environments, large size	561
	GOLDENCRIMP 450	Benchtop	Field maintenance shops, wide hose range	Very high crimping force, tough environments, large size	563
	MRV 137 EVO R	Field service and mobile workshop	On site repair mobile van	Medium crimping force, limited productivity	564
	MV 137 L	Field service and mobile workshop	On site repair mobile van	Medium crimping force, limited productivity	565
	MV 240	Field service and mobile workshop	On site repair mobile van	Medium crimping force, limited productivity	566

	MODEL	MACHINE TYPE	APPLICATION SECTOR	MACHINE PERFORMANCE	PAGE
CRIMPING	MV 240 L	Field service and mobile workshop	On site repair mobile van	Medium crimping force, limited productivity	567
	MV 350 / MV 350 L	Field service and mobile or container workshop	On site repair mobile van	High crimping force, limited productivity, large size	568
	MS 140	Stand type crimp machine	Assembling production unit, small/ medium sizes	Medium crimping force, high productivity for small - medium bore	570
	MS 320	Stand-type crimp machine, SCS control	Assembling production unit, OEM and distribution	High crimping force, high productivity, large size	571
	MS 480	Stand-type crimp machine, SCS control	Assembling production unit, OEM and large bore focus	Very high crimping force, high productivity, very large opening	573
	MS 800	Stand-type crimp machine, SCS control	Assembling production unit	Very high crimping force for large bore hose focus	575
	MS 320 OPEN HEAD	Stand-type crimp machine	Assembling production unit	High crimping force for large bore hose focus	577
	MS 450-200	Stand-type crimp machine	Assembling production unit	Very high crimping force for large bore hose focus	578
	MS 550 / MS 550-16	Stand-type crimp machine, SCS control	Assembling production unit	Very high crimping force for large bore hose focus	579
TEST BENCHES	MTB 2000 L	Stand type machine; proof pressure and certify	Production unit	Wide hose range capacity	582
	MTB 2000 XL	Stand type machine; proof pressure and certify	Production unit	Wide hose range capacity	583
DIE SETS	DIE SETS FOR CRIMPING MACHINES				584

In order to simplify the process of selecting appropriate equipment for new workshops, Manuli Hydraulics also offers a range of scaled machine modules. These modules include suitable combinations of cutting and crimping machines (and skiving where appropriate), based on the scale and planned throughput of the intended assembly operation.

MODULE		DESCRIPTION	CAPACITY	CUTTING	SKIVING	CRIMPING
M0	STATIC	Small Service Workshop	• 1¼" 4WS • 25 Hoses / Day • Mixed sizes	M 22 CUT	M 50 SKY	MB 137 EVO
	MOBILE			M 22 CUT (12/24 V)	MH SKY	MRV 137 EVO R (12V)
M1	STATIC	Intermittent Service Workshop	• 2" 4WS • 50 Hoses / Day • Mixed sizes	M 30 CUT L	M 50 SKY	MB 240 EVO
	MOBILE					MV 240 EVO (12/24 V or 220 V 1Ph)
M2	STATIC	Continuous Service Workshop	• 2" 6WS - 3" 2WB • 100 Hoses / Day • Mixed sizes	M 75 CUT	M 205 SKY PLUS	GoldenCrimp/420 MB 350 EVO
	MOBILE					MV 350 (12/24 V or 220 V 1Ph/3Ph) MV 420 (220 1Ph)
M3	STATIC	Container Service Workshop or Heavy Duty Workshop	• 3" 6WS - 4" 2WB • 100 Hoses / Day • Mixed sizes	M90 CUT	M 205 SKY PLUS (with reinforced clamping system)	GoldenCrimp/450
P1	STATIC	OEM Assembly Workshop	• 1¼" 4WS - 2" 2WB • >100 Hoses / Day • Mixed sizes	M 55 CUT P	M 300 SKY	MS 140 SCS
P2	STATIC	OEM Assembly Workshop	• 2" 4WS - 3" 2WB • >100 Hoses / Day • Mixed sizes	M 55 CUT P	M 300 SKY	MS 320
P3	STATIC	OEM Assembly Workshop	• 2" 6WS - 3" 4WS • >100 Hoses / Day • Mixed sizes	M 90 CUT	M 205 SKY *(With reinforced clamping system)*	MS 480
P4	STATIC	XXL Assembly Workshop	• 3" 8WS - 4" 4WS - 8" Industrial Hose • 50 Hoses / Day • Mixed sizes	MDH 15 CUT	MDH 205 SKY	MS 550 / MS 800

Key

M Maintenance Operations

Intended for small or medium aftermarket, repair service

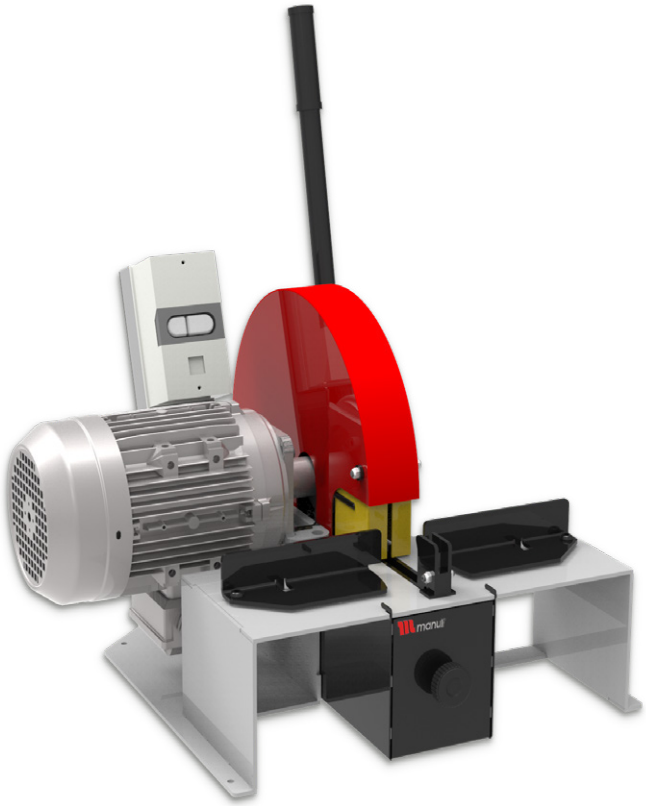
P Production Operations

Intended for small/medium/large OEM activity or large production aftermarket

MODULE		DESCRIPTION	CAPACITY	CUTTING	ACCESSORIES	CRIMPING
I1	STATIC	Industrial Workshop	• Industrial hose up to 6”	M75 CUT / MDH 15 CUT	Insert Pushing Decoiler	MS 320 OPEN HEAD
I2	STATIC	Industrial Workshop	• Intrustrial hose 4” & 6” • 2wb : 4”max • 4ws : 3” max • 6ws : 2” max	M75 CUT / M90 CUT / MDH15 CUT	Insert Pushing Decoiler	MS 450-200

M 22 CUT / MV 22 CUT

STARTER WORKSHOP BENCHTOP



KEY FEATURES

- Smooth bending system
- 90° cut
- Clean cut
- Scalloped blade
- Dust collector included
- Multiple voltage options

TECHNICAL SPECIFICATIONS

CAPACITY
2wb: 1¼" max.
4ws: 1¼" max.

ROTATION SPEED
3000 rpm

SCALLOPED BLADE DIAMETER
254 mm (10") included

MAX HOSE OD.
50 mm (1.969")

MOTOR
2.2 kW

VOLTAGES
220/240 V, 3Ph, 50 Hz
380/415 V, 3Ph, 50 Hz
208/240 V, 3Ph, 60 Hz
380/415 V, 3Ph, 60 Hz
12/24 V also available upon request

DIMENSIONS
630 x 485 x 650 mm
(25 x 19 x 26 ")

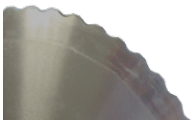
PACKAGING
800 x 600 x 830 mm
(31 x 24 x 33")

NET WEIGHT
42 kg (93 lb)

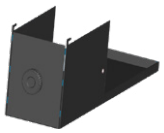
GROSS WEIGHT
55 kg (121 lb)

TECHNICAL FEATURES
Dimensions van type machine:
488 x 630 x 650 mm
(19.2 x 24.8 x 25.6");
38 kg (84 lb)

STANDARD



Scalloped Blade



Dust Collector

OPTIONAL



Battery & Charger

M 30 CUT E

STARTER & PROFESSIONAL WORKSHOP BENCHTOP CUTTING MACHINE, OPTIONAL SKIVING



KEY FEATURES

Compact design

Easy and safe to use

Versatile, scalloped blade for high performance and efficient cutting with minimal smoke

Electronic brake

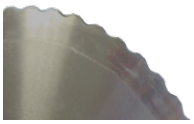
Skiving module can be ordered as optional and integrated on this machine

TECHNICAL SPECIFICATIONS

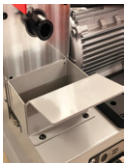
CAPACITY
2wb: 2” max.
4ws: 2” max.
6ws: 1¼” max.
Industrial: 2” max.
ROTATION SPEED
3000 rpm
SCALLOPED BLADE DIAMETER
300 mm (11.8”)
MAX HOSE OD.
85 mm (3.346”)
MOTOR
2.2 kW

VOLTAGES
220/240 V, 3Ph, 50 Hz
380/415 V, 3Ph, 50 Hz
208/240 V, 3Ph, 60 Hz
380/415 V, 3Ph, 60 Hz
DIMENSIONS
835 x 545 x 640 mm
(33 x 21 x 25”)
PACKAGING
1170 x 770 x 1100 mm
(46 x 30 x 43”)
NET WEIGHT
75 kg (165 lb)
GROSS WEIGHT
90 kg (198 lb)

STANDARD



Scalloped Blade



Dust Collector

OPTIONAL



Cutting Rail

M 30 CUT & SKIVE

STARTER & PROFESSIONAL WORKSHOP BENCHTOP, INTEGRATED CUTTING & SKIVING



KEY FEATURES

- Compact design
- Two operations in one machine
- Easy and safe to use
- Versatile, scalloped blade for high performance and efficient cutting with minimal smoke
- Dust free skive operation (drawers for dust collection)
- Electronic brake

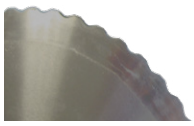
TECHNICAL SPECIFICATIONS

CAPACITY	VOLTAGES
2wb: 2” max.	220/240 V, 3Ph, 50 Hz
4ws: 2” max.	380/415 V, 3Ph, 50 Hz
6ws: 1¼” max.	208/240 V, 3Ph, 60 Hz
Industrial: 2” max.	380/415 V, 3Ph, 60 Hz
ROTATION SPEED (CUT)	**DIMENSIONS**
3000 rpm	835 x 545 x 640 mm
ROTATION SPEED (SKIVE)	(33 x 21 x 25”)
200 rpm	**PACKAGING**
SCALLOPED BLADE DIAMETER	1170 x 770 x 1100 mm
300 mm (11.8”)	46 x 30 x 43”
MAX HOSE OD.	**NET WEIGHT**
85 mm (3.34”)	85 kg (187 lb)
MOTOR	**GROSS WEIGHT**
2.2 kW	100 kg (220 lb)

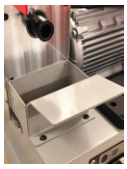
TECHNICAL FEATURES

Skiving tools for External Skiving (ESE) and for Internal Skiving (IS) to be ordered separately

STANDARD



Scalloped Blade

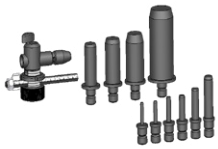


Dust Collector

OPTIONAL



Cutting Rail



Tool Kit ESE



Tool Kit iS

M 30 CUT L

STARTER & PROFESSIONAL WORKSHOP STAND TYPE CUTTING MACHINE



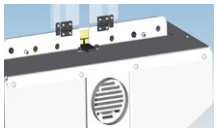
KEY FEATURES

- Compact design
- Easy and safe to use
- Versatile, scalloped blade for high performance and efficient cutting with minimal smoke
- Ergonomic, easy to clean
- Integrated dust collector

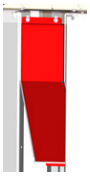
TECHNICAL SPECIFICATIONS

CAPACITY	VOLTAGES
2wb: 2” max.	220/240 V, 3Ph, 50 Hz
4ws: 2” max.	380/415 V, 3Ph, 50 Hz
6ws: 1¼” max.	208/240 V, 3Ph, 60 Hz
Industrial: 2”	380/415 V, 3Ph, 60 Hz
ROTATION SPEED	**DIMENSIONS**
3000 rpm	765 x 500 x 1150 mm
SCALLOPED BLADE DIAMETER	(30 x 20 x 45”)
254 mm (10”)	**PACKAGING**
MAX HOSE OD.	800 x 600 x 1200 mm
85 mm (3.34”)	(32 x 24 x 47”)
MOTOR	**NET WEIGHT**
3.0 kW	92 kg (203 lb)
	GROSS WEIGHT
	120 kg (265 lb)

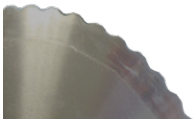
STANDARD



Smoke Suction Connector



2 Dust Collectors



Scalloped Blade



Slotted Blade

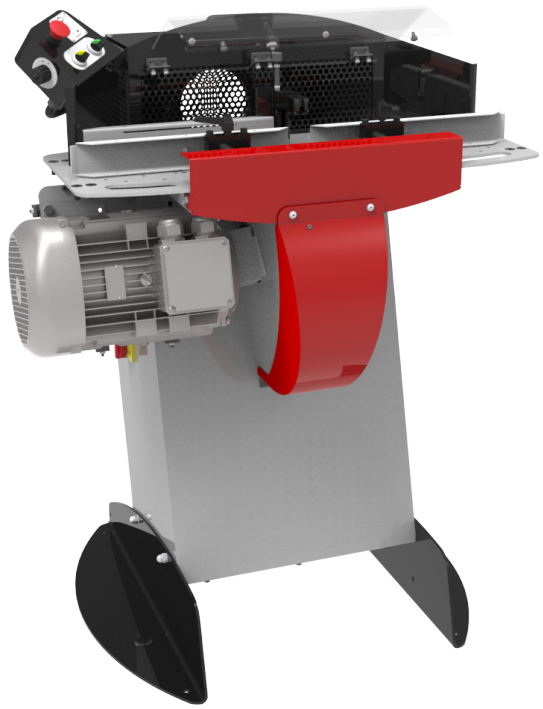
OPTIONAL



Cutting Rail

M 55 CUT

FULL SERVICE WORKSHOP, STARTER PRODUCTION UNITS STAND TYPE CUTTING MACHINE



KEY FEATURES

Versatile, slotted blade for high performance smoke free cutting

Ergonomic and functional design

Double foot pedal system

Safety cover and feeding guides for hose (easy and fast cutting operation)

Digital counter for maintenance assistance

Adjustable speed for cutting on pneumatic version

TECHNICAL SPECIFICATIONS

CAPACITY

2wb: 2” max.

4ws: 2” max.

6ws: 2” max.

Industrial: 2”

ROTATION SPEED

3000 rpm

SLOTTED BLADE DIAMETER

400 mm (15.7”)

MAX HOSE OD.

80 mm (3.15”)

MOTOR

7.5 kW

VOLTAGES

220/240 V, 3Ph, 50 Hz

380/415 V, 3Ph, 50 Hz

208/240 V, 3Ph, 60 Hz

380/415 V, 3Ph, 60 Hz

DIMENSIONS

1140 x 1000 x 1280 mm

(45 x 39 x 50”)

PACKAGING

1600 x 1200 x 1600 mm

(63 x 47 x 63”)

NET WEIGHT

240 kg (529 lb)

GROSS WEIGHT

280 kg (617 lb)

TECHNICAL FEATURES

Diameter of the suction connection: 150 mm (6”)

Options: Pneumatic bending system, scalloped blade

STANDARD



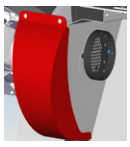
Control Panel



Slotted Blade



Feeding Guide

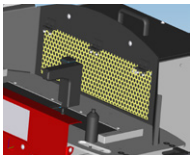


Dust Collector

OPTIONAL



Cutting Rail



Smoke Suction



Decoiler



DV 32



DVC

M 75 CUT

EXPERT SERVICE LINE
STAND TYPE CUTTING MACHINE



KEY FEATURES

- Powerful
- Safety cover
- High visibility
- Suitable for cutting large bore hoses

STANDARD



Slotted Blade

TECHNICAL SPECIFICATIONS

CAPACITY	VOLTAGES
2wb: 3” max.	220/240 V, 3Ph, 50 Hz
4ws: 2” max.	380/415 V, 3Ph, 50 Hz
6ws: 2” max.	208/240 V, 3Ph, 60 Hz
ROTATION SPEED	380/415 V, 3Ph, 60 Hz
3000 rpm	**DIMENSIONS**
SLOTTED BLADE DIAMETER	910 x 820 x 1280 mm
520 mm (20.5”) included	(36 x 32 x 50”)
MAX HOSE OD.	**NET WEIGHT**
125 mm (5”)	215 kg (474 lb)
MOTOR	**TECHNICAL FEATURES**
7.5 kW	Diameter of suction connection: 110 mm (4.33 “) Optional tool: Brake motor, slotted disc

OPTIONAL



Cutting Rail



Decoiler



DV 32



DVC

M 90 CUT

EXPERT SERVICE LINE
STAND TYPE CUTTING MACHINE



KEY FEATURES

- Very powerful
- Heavy duty for difficult cuts
- Hydraulic bending
- Brake motor
- Electronic soft start
- Smoke suction integrated in cutting table

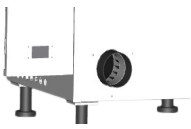
STANDARD



Slotted Blade



Production Counters



Smoke Suction Connector



CME Electrical Foot Switch

TECHNICAL SPECIFICATIONS

CAPACITY	VOLTAGES
2wb: 3½" max.	220/240 V, 3Ph, 50 Hz
4ws: 3½" max.	380/415 V, 3Ph, 50 Hz
6ws: 3" max.	208/240 V, 3Ph, 60 Hz
ROTATION SPEED	380/415 V, 3Ph, 60 Hz
3000 rpm	**DIMENSIONS**
SLOTTED BLADE DIAMETER	1000 x 1060 x 1350 mm
520 mm (20.5") included	(39 x 42 x 53")
MAX HOSE OD.	**NET WEIGHT**
125 mm (5")	260 kg (573 lb)
MOTOR	
9.0 kW	

TECHNICAL FEATURES

Diameter of suction connection: 110 mm (4.33")

Standard tool: Hydraulic bending, brake motor

Optional tool: Slotted disc

OPTIONAL



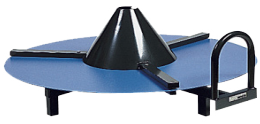
Cutting Rail



Decoiler



DV 32



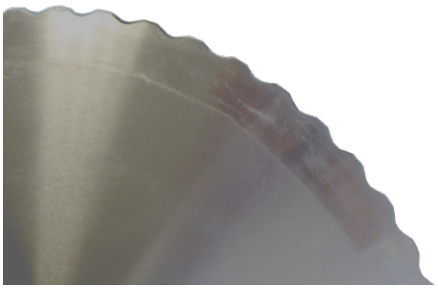
DVC

ACCESSORIES AND TOOLS

CUTTING DISCS

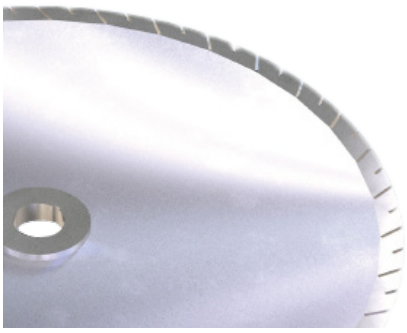
SCALLOPED BLADE TYPE

The scalloped blade is suitable for all hose types. It is able to reach a high quality of cutting surface and is the standard on 254 and 300 mm blades.



SLOTTED BLADE TYPE

The slotted blade is recommended for cutting standard and heavy duty hoses. It is ideal for continuous service, as the blade profile has been optimised to maintain a low temperature on the cutting edge. This blade provides an extended operational life of up to 2 times that of the previous blade, and is the standard on 400 and 520 mm blades.



BRAKE MOTOR

The brake motor is a device which stops the disc immediately when the stop button is pushed.

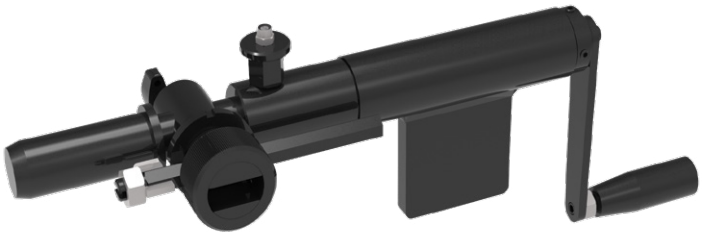
PNEUMATIC BENDING

Available on M 75 CUT and M 55 CUT.

Pneumatic bending facilitates cutting, as the operator does not have to force the hose on the blade. The pneumatic system, activated by a foot switch, offers hands free operation. This is the same principle for the hydraulic bending on M 90 CUT.

MH SKY

FIELD SERVICE & MOBILE WORKSHOP MANUAL, PORTABLE SKIVING TOOL



KEY FEATURES

- Portable, lightweight
- Economic
- Simple
- Compact
- Robust
- Plugín skive system

TECHNICAL SPECIFICATIONS

CAPACITY

2wb: 2” max.

4ws: 2” max.

DIMENSIONS

413 x 52 x 224 mm

(16 x 2 x 9”)

NET WEIGHT

3 kg (7 lb)

TECHNICAL FEATURES

Tool selection:

- External Skiving Kit (ESE) including 10 mandrels (6-8-10-13-16-19-25-32-38-50)

- Internal Skiving Kit (IS) including 7 mandrels (13-16-19-25-32-38-50)

Internal skiving tools can also be ordered per diameter

OPTIONAL



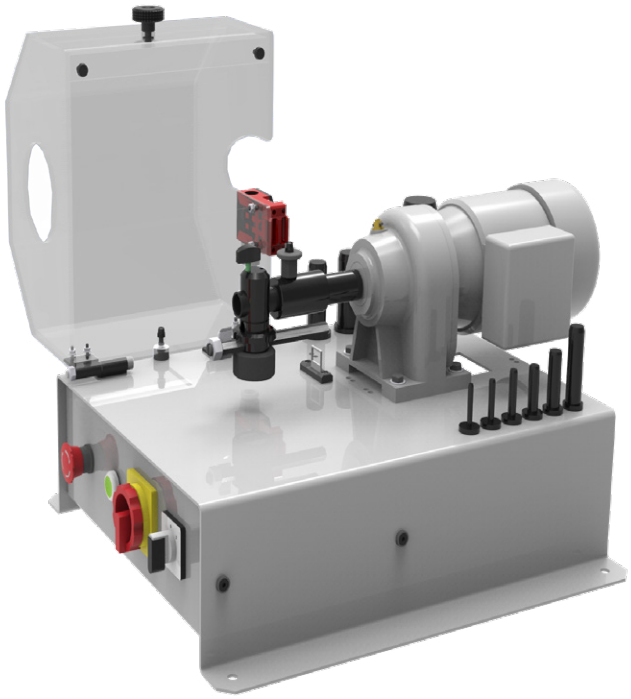
Tool Kit ESE



Tool Kit IS

M 50 SKY

SMALL SERVICE WORKSHOP BENCHTOP SKIVING



KEY FEATURES

- Plug'n skive system
- Compact & stable
- Safety switch on the cover
- Good visibility
- Tool storage included
- Foot pedal drive with emergency stop
- 2-way rotation

STANDARD



CME Electrical Foot Switch

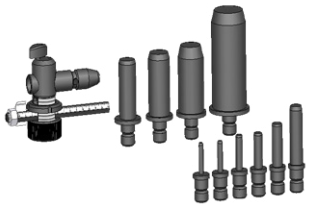
TECHNICAL SPECIFICATIONS

CAPACITY	**PACKAGING**
2wb: 2" max. 4ws: 2" max.	800 x 600 x 830 mm (31 x 24 x 33")
ROTATION SPEED	**NET WEIGHT**
100 rpm	45 kg (99 lb)
MOTOR	**GROSS WEIGHT**
0.25 kW	55 kg (121 lb)
VOLTAGES	**TECHNICAL FEATURES**
220/240 V, 1Ph, 50 Hz 380/415 V, 3Ph, 50 Hz 220/240 V, 1Ph, 60 Hz 380/415 V, 3Ph, 60 Hz	Tools available (to be ordered separately) ESE, IS, ESP1, ESP2
DIMENSIONS	
500 x 660 x 360 mm (19 x 26 x 14")	

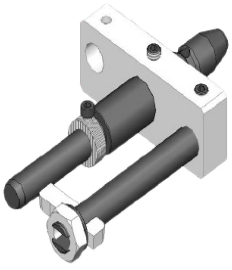
OPTIONAL



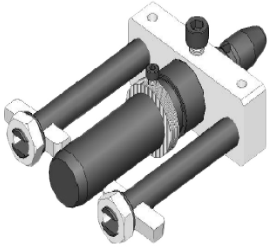
Tool Kit IS



Tool Kit ESE



Tool Kit ESP 1



Tool Kit ESP 2

M 205 SKY

STARTER & PROFESSIONAL WORKSHOP STAND TYPE SKIVING MACHINE



KEY FEATURES

- Plug'n skive system
- Large dust collector
- Robust & easily adjustable knife for quick and easy changeover
- Suitable for high volume production
- 2-way rotation

TECHNICAL SPECIFICATIONS

CAPACITY

2wb: 3" max. with optional tools

4ws: 3" max. with optional tools

6ws: 3" max. with optional tools

ROTATION SPEED

205 rpm

MOTOR

0.9 kW

VOLTAGES

220/240 V, 3Ph, 50 Hz

380/415 V, 3Ph, 50 Hz

208/240 V, 3Ph, 60 Hz

380/415 V, 3Ph, 60 Hz

DIMENSIONS

675 x 550 x 1130 mm

(27 x 22 x 44")

PACKAGING

800 x 600 x 1200 mm

(32 x 24 x 47")

NET WEIGHT

100 kg (220 lb)

GROSS WEIGHT

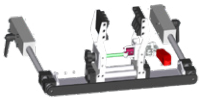
160 kg (353 lb)

TECHNICAL FEATURES

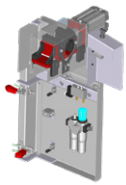
Options available: speed regulator, hose clamping system (limited to distribution workshop using sizes under 2")

Tools available (to be ordered separately): ESA, IS, ESP1, ESP2

OPTIONAL



Manual Hose Clamping System



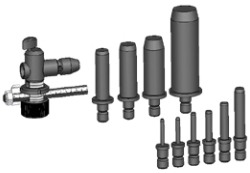
Pneumatic Hose Clamping System



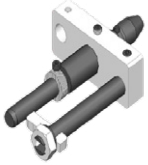
Speed Regulator



Tool Kit IS



Tool Kit ESE



Tool Kit ESP 1



Tool Kit ESP 2

ACCESSORIES AND TOOLS

EXTERNAL SKIVING TOOLS

Depending on the machine and on customer needs, Manuli Hydraulics offers 3 types of external skiving tools:

ESE (External Skiving Economic)

For MH SKY, M 50 SKY and M 30 CUT & SKIVE

The ESE kit includes 10 mandrels: ¼", 5/16", ⅜",½", ⅝", ¾", 1", 1¼", 1½", 2"

ESA (External Skiving Adjustable)

For M 205 SKY

The ESA kit includes 11 mandrels: 3/16",¼", 5/16", ⅜",½", ⅝", ¾", 1", 1¼", 1½", 2"

ESA mandrels are also available in 2½" and 3"

ESP (External Skiving Production)

For M 50 SKY and M 205 SKY

ESP tools are individual 'skiving heads' intended to be pre-set to the right depth and length for greater productivity. They are recommended for batch skiving operations and a second knife can be added for abrasion resistant covers.

ESP is available in: 3/16",¼", 5/16", ⅜",½", ⅝", ¾", 1", 1¼", 1½", 2", 2½" and 3"

INTERNAL SKIVING TOOLS

IS (Internal Skiving)

For all machines

The IS kit includes 7 mandrels: /2", ⅝", ¾", 1", 1¼", 1½", 2"

They are also available in ⅝", 2½" and 3"

The ring is heat treated to resist the abrasion of the hose wires.

Optional venturi system with IS tool.

ACCESSORIES AND TOOLS

HOSE CLAMPING SYSTEM

Recommended for skiving hoses over 2” (DN 50)

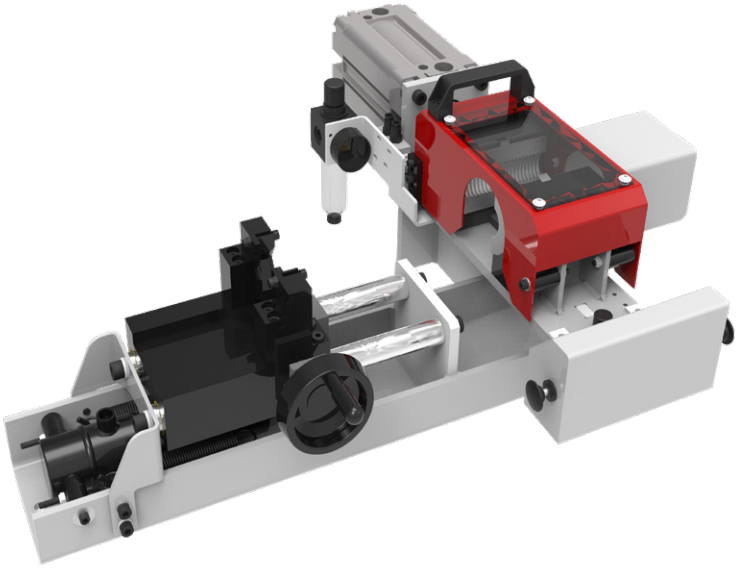
PLUG N’SKIVE SYSTEM

All Manuli Hydraulics skiving machines are equipped with the Plug’n Skive System which allows the quick and easy insertion of tools.

With the Plug n’Skive System no tools are needed to insert the skiving mandrel, simply push the mandrel into the locking system to unlock it, lift a knob and pull out the tool.

M 1500 INS

EXPERT SERVICE LINE
BENCHTOP COUPLING INSERTER



KEY FEATURES

- Compact
- Sturdy
- Powerful
- Hydro pneumatic power pack

TECHNICAL SPECIFICATIONS

CAPACITY

2wb: 2” max.

4ws: 2” max.

6ws: 2” max.

DIMENSIONS

750 x 660 x 300 mm

(30 x 26 x 12”)

NET WEIGHT

70 kg (154 lb)

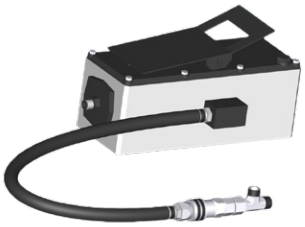
POWER SUPPLY

Compressed air (7 bar)

TECHNICAL FEATURES

Optional tool: for small bore ¼”, ⅜”, ½” shell

STANDARD



Hydro-pneumatic Pump

M 2000 INS

EXPERT SERVICE LINE
BENCHTOP COUPLING INSERTER



KEY FEATURES

- Compact
- Sturdy
- Powerful
- Manual insert centring device
- Joystick operated clamping and insertion

TECHNICAL SPECIFICATIONS

CAPACITY	**MAXIMUM FLANGE**
76 mm - 170 mm OD Hose	250 mm
DIMENSIONS	**INSERTION FORCE**
800 x 500 x 900 mm (31 x 20 x 35”)	2,000 N
NET WEIGHT	**INSERTION STROKE**
150 kg (330 lb)	300 mm
VOLTAGES	**INSERTION SPEED***
380/415 V, 3Ph, 50 Hz	28 mm/s
POWER	**CLAMPING LENGTH**
1.5kW	200 mm

OPTIONS

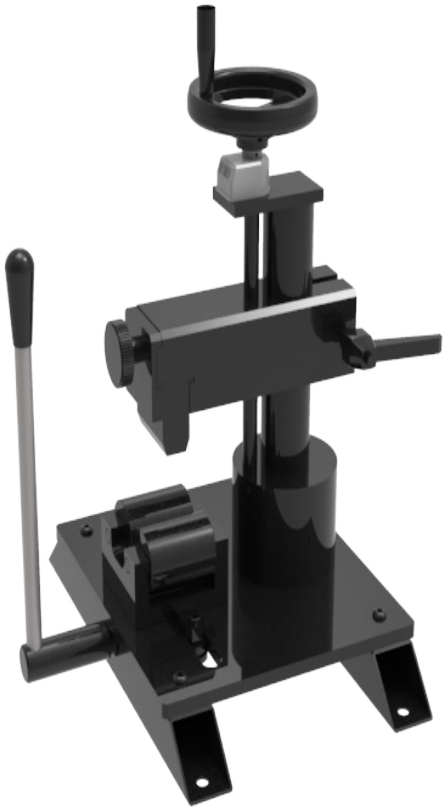
Manual version available



* Electrical version only

M 50 MARK

AFTER MARKET SERVICE
BENCHTOP, FERRULE MARKING



KEY FEATURES

- Robust
- Easy to use
- Compact
- Large space for 14 stamps
- Stamp holder with numbering wheel; 3 figures on the wheel + 1 groove for stamps

TECHNICAL SPECIFICATIONS

CAPACITY
2wb: 4” max.
4ws: 4” max.

DIMENSIONS
390 x 360 x 520 mm
(15 x 14 x 20”)

PACKAGING
800 x 600 x 830 mm
(31 x 24 x 33”)

NET WEIGHT
34 kg (75 lb)

GROSS WEIGHT
50 kg (110 lb)

STANDARD STAMP HOLDER
2 x 14 stamps

SIZE OF THE STAMPS
6 x 3 mm
(0.236 x 0.118”)

HEIGHT OF THE LETTERS
2.5 mm
(0.098”)

TECHNICAL FEATURES
Optional stamp holder with numbering wheel: 3 figures on the wheel and one groove for 10 stamps

STAMP BOX
Includes stamp box of 100 stamps & 20 blanks

CK 50



TECHNICAL SPECIFICATIONS

NUMBER OF NOZZLES

10 to suit hose ID

COMPRESSED AIR

7 bar

MINIMUM INTERNAL DIAMETER OF HOSE

6 mm

MINIMUM INTERNAL DIAMETER

51 mm

TECHNICAL FEATURES

Includes 575 pellets & projectile catcher

HRD 07

HOSES CAN BE STORED ON THE HOSE DISPENSER



TECHNICAL SPECIFICATIONS

MAXIMUM NUMBER OF COILS

7

MAXIMUM WEIGHT/COIL

80 kg

MINIMUM INTERNAL DIAMETER

300 mm

MINIMUM EXTERNAL DIAMETER

850 mm

MAXIMUM HEIGHT

200 mm

DIMENSIONS

1180 x 1180 x 2115 mm (100 kg)

PACKAGING

1200 x 1200 x 720 mm (135 kg)

DV 32 - DVC - OEM DECOILER

DV 32



DVC



OEM



The hose decoiler is highly adaptable, suitable for a hose reel or a coil up to 100 kgs. It is stable and equipped with a hose guide system and a manual break, offering increased safety and efficiency.

INDUSTRIAL DECOILER

Robust, motorised decoiler for large bore industrial hose. Comes with 6 manually adjustable centring pins, remote stop-start controller and a high torque, 3kW motor with speed control.



VOLTAGES

400 V, 3Ph, 50 Hz

DIMENSIONS

2600 x 2600 x 1600 mm

(102 x 102 x 63")

NET WEIGHT

714 kg (1570 lb)

MOTOR

3 kW with speed control

POWER TORQUE

1200 N

TABLE DIAMETER

2200 mm

MHP 80

FIELD SERVICE & MOBILE WORKSHOP HAND PUMP, PORTABLE



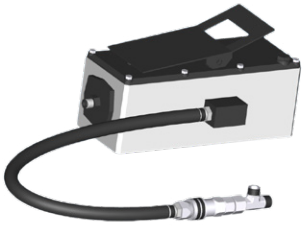
KEY FEATURES

- Compact
- Lightweight
- Easy to use
- Balanced design
- Dual stage pump
- 1” Die Set included

OPTIONAL



Maintenance Kits



Hydro-pneumatic Pump

TECHNICAL SPECIFICATIONS

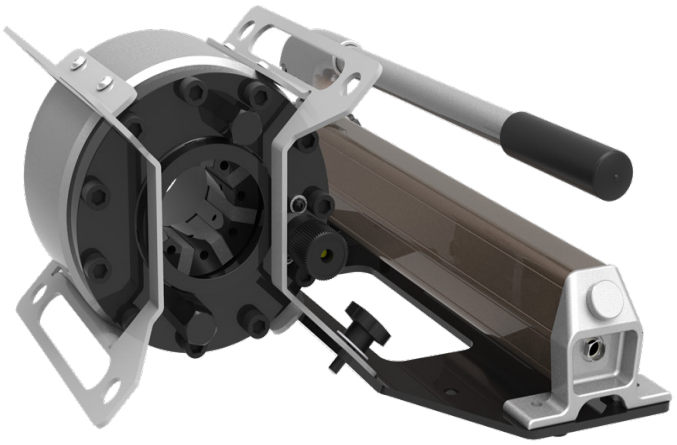
CRIMP RANGE	**DIMENSIONS**
4 - 43 mm (0.157 - 1.693”)	330 x 250 x 400 mm
CRIMP FORCE	(13 x 10 x 16”)
80 t	**PACKAGING**
OPENING WITH DIES	800 x 600 x 830 mm
+20 mm (+0.787”)	(31 x 24 x 33”)
COMPLETE OPENING	**NET WEIGHT**
59 mm (2.323”)	28 kg (62 lb)
MASTER DIE LENGTH	**GROSS WEIGHT**
56 mm (2.205”)	41 kg (90 lb)
STANDARD DIES	**TECHNICAL FEATURES**
15, 18, 21, 24, 27, 30, 39	Hand pump: 5000 psi (double speed)

HOSE AND FITTINGS SELECTION

HOSE TYPE	FITTING TYPE	MAX HOSE SIZE
2 WIRE BRAID & TEXTILE	MF2000 MULTIFIT; MF3000 OPK; MF3000 OPF	1"
3 WIRE (1 BRAID + 2 SPIRAL)	MF2000 MULTIFIT	½"
4 WIRE SPIRALS	MF2000 MULTIFIT; MF3000 OPK	½"

MHP 110

FIELD SERVICE & MOBILE WORKSHOP HAND PUMP, PORTABLE



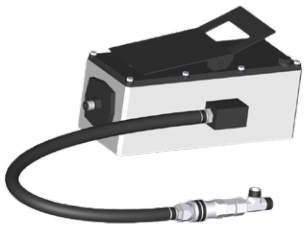
KEY FEATURES

- Flexible
- Portable
- Robust (protected narrow head)
- Multi-positioning (with removable plate)

OPTIONAL



Maintenance Kits



Hydro-pneumatic Pump

TECHNICAL SPECIFICATIONS

CRIMP RANGE	**STANDARD DIES**
4 - 43 mm (0.157 - 1.693”)	15, 18, 21, 24, 27, 30
CRIMP FORCE	**DIMENSIONS**
110 t	220 x 222 x 240 mm
OPENING WITH DIES	(7 x 9 x 10”)
+20 mm (+0.787”)	**PACKAGING**
COMPLETE OPENING	800 x 600 x 830 mm
59 mm (2.323”)	(31 x 24 x 33”)
MASTER DIE LENGTH	**NET WEIGHT**
60 mm (2.362”)	28 kg (62 lb)
	WEIGHT (HEAD ONLY)
	21 kg (46 lbs)

HOSE AND FITTINGS SELECTION

HOSE TYPE	FITTING TYPE	MAX HOSE SIZE
2 WIRE BRAID & TEXTILE	MF2000 MULTIFIT; MF3000 OPK; MF3000 OPF	1"
3 WIRE (1 BRAID + 2 SPIRAL)	MF2000 MULTIFIT	¾"
4 WIRE SPIRALS	MF2000 MULTIFIT; MF3000 OPK	1"

MHP 137

FIELD SERVICE & MOBILE WORKSHOP HAND PUMP, PORTABLE



KEY FEATURES

- High capacity
- Narrow head
- Audio-visual signal
- 350 bar technology more robust & reliable than 700 bar
- Large opening

OPTIONAL



Maintenance Kit



Quick Change Gun



Aluminium Quick Change Gun



Die Storage Panel



Hydro-pneumatic Pump



Marking Dies



Die Sets for Brake & Air Conditioning Hoses

TECHNICAL SPECIFICATIONS

CRIMP RANGE
4 - 70 mm (0.157 - 2.756")

CRIMP FORCE
137 t

OPENING WITH DIES
+28 mm (+1.102")

COMPLETE OPENING
100 mm (3.937")

MASTER DIE LENGTH
75 mm (2.362")

STANDARD DIES
15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 48, 51 and Refrifast dies 14, 18, 21

DIMENSIONS
480 x 250 x 340 mm
(19 x 10 x 13")

PACKAGING
800 x 600 x 830 mm
(31 x 24 x 33")

NET WEIGHT
55 kg (121 lb)

GROSS WEIGHT
75 kg (165 lb)

HOSE AND FITTINGS SELECTION

HOSE TYPE	FITTING TYPE	MAX HOSE SIZE
2 WIRE BRAID & TEXTILE	MF2000 MULTIFIT; MF3000 OPF; MF3000 OPK	1 ¼"
3 WIRE (1 BRAID + 2 SPIRAL)	MF2000 MULTIFIT;	1 ¼"
4 WIRE SPIRALS	MF2000 MULTIFIT; MF3000 OPK	1 ¼"
3 WIRE (1 BRAID + 2 SPIRAL)	MF2000 INTERLOCK PLUS; MF2000 SPIRALFIT	¾"
4 WIRE SPIRALS	MF2000 INTERLOCK PLUS; MF2000 SPIRALFIT	¾"

MRB 137 EVO R

MAINTENANCE WORKSHOP
VERTICAL BENCHTOP



KEY FEATURES

- Ergonomically positioned adjustable head
- Axis of the head situated perpendicular to the operator
- Compact
- Optional quick change tool for dies
- Range of standard dies available

OPTIONAL



Maintenance Kit



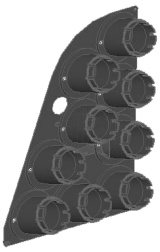
Die Storage Panel



Die Storage Table



Quick Change Gun



Die Storage Panel EVO R



Aluminium Quick Change Gun

TECHNICAL SPECIFICATIONS

CRIMP RANGE
6 to 56 mm (0.517 - 2.205")

CRIMP FORCE
137 t

OPENING WITH DIES
+28 mm (+1.102")

COMPLETE OPENING
100 mm (3.937")

MASTER DIE LENGTH
75 mm (2.953")

STANDARD DIES
15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 48, 51

NOISE LEVEL
70 dB A

MOTOR
1.5 kW (110V)
2.2 kW (230V)

VOLTAGES
110 V, 1Ph, 60 Hz
220/240 V, 1 Ph, 50 Hz
380/415V, 3 Ph + N, 50 Hz
+12/24
Other voltages available on request

DIMENSIONS
360 x 530 x 620 mm
(14 x 21 x 25")

NET WEIGHT
85 kg (187 lb)

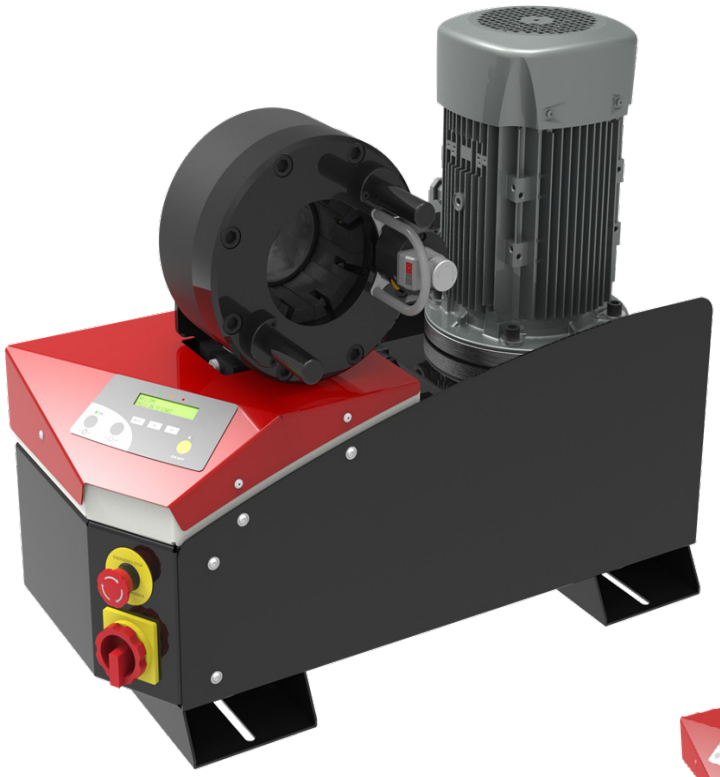
GROSS WEIGHT
89 kg (196 lb)

HOSE AND FITTINGS SELECTION

HOSE TYPE	FITTING TYPE	MAX HOSE SIZE
2 WIRE BRAID & TEXTILE	MF2000 MULTIFIT; MF3000 OPF; MF3000 OPK	1 ¼"
3 WIRE (1 BRAID + 2 SPIRAL)	MF2000 MULTIFIT	1 ¼"
4 WIRE SPIRALS	MF2000 MULTIFIT; MF3000 OPK	1 ¼"
3 WIRE (1 BRAID + 2 SPIRAL)	MF2000 INTERLOCK PLUS; MF2000 SPIRALFIT	¾"
4 WIRE SPIRALS	MF2000 INTERLOCK PLUS; MF2000 SPIRALFIT	¾"

MB 137 EVO

ASSEMBLING FOR FIELD REPAIR BENCHTOP CRIMP MACHINE



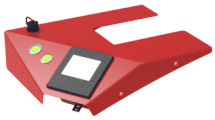
KEY FEATURES

- Crimp force of up to 137 tonnes for hoses up to 1¼”
- Easy to use and robust
- Extensive range of dies to suit crimping of hydraulic hoses
- Easy to set up and maintain
- Fast and reliable
- Numerical micrometer
- Model shown equipped with SC control panel
- Calliper option on SCE control panel
- Bluetooth as standard on SC and SCE control panels

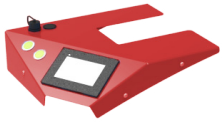
CONTROL OPTIONS AVAILABLE ON REQUEST



SC



SCE



SCS

TECHNICAL SPECIFICATIONS

CRIMP RANGE	**NOISE LEVEL**
4 - 70 mm (0.157 - 2.756”)	70 dB A
CRIMP FORCE	**MOTOR**
137 t	4.0 kW
OPENING WITH DIES	**VOLTAGES**
+28 mm (+1.102”)	220/240 V, 3Ph, 50 Hz
COMPLETE OPENING	380/415 V, 3Ph, 50 Hz
100 mm (3.937”)	208/240 V, 3Ph, 60 Hz
MASTER DIE LENGTH	380/415 V, 3Ph, 60 Hz
75 mm (2.953”)	Other voltages available on request
STANDARD DIES	**DIMENSIONS**
15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 48, 51	765 x 400 x 650 mm (30 x 16 x 26”)
	NET WEIGHT
	160 kg (353 lb)

OPTIONAL



Maintenance Kit



Marking Dies



Die Storage Panel



Die Storage Table



Electrical Footswitch



Quick Change Gun



Aluminium Quick Change Gun



Die Storage Panel EVO



Die Sets for Brake & Air Conditioning Hoses

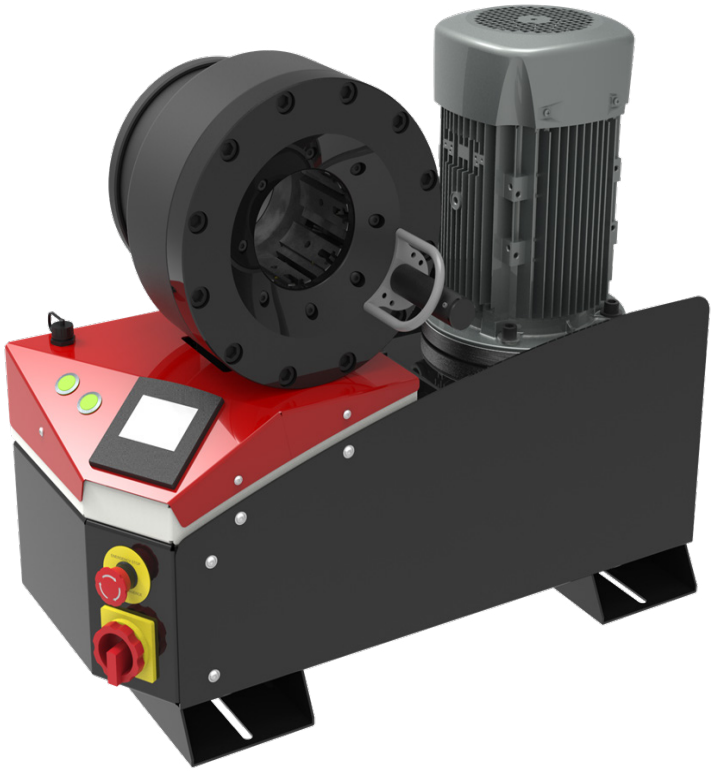
MB 137 EVO

ASSEMBLING FOR FIELD REPAIR BENCHTOP CRIMP MACHINE

HOSE AND FITTINGS SELECTION		
HOSE TYPE	FITTING TYPE	MAX HOSE SIZE
2 WIRE BRAID & TEXTILE	MF2000 MULTIFIT; MF3000 OPF; MF3000 OPK	1 ¼"
3 WIRE (1 BRAID + 2 SPIRAL)	MF2000 MULTIFIT	1 ¼"
4 WIRE SPIRALS	MF2000 MULTIFIT; MF3000 OPK	1 ¼"
3 WIRE (1 BRAID + 2 SPIRAL)	MF2000 INTERLOCK PLUS; MF2000 SPIRALFIT	¾"
4 WIRE SPIRALS	MF2000 INTERLOCK PLUS; MF2000 SPIRALFIT	¾"

MB 240 EVO

PROFESSIONAL WORKSHOP BENCHTOP



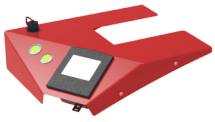
KEY FEATURES

- Crimp force of up to 240 tonnes for hoses up to 2”
- Easy to use and robust
- Radial die movement
- High crimping force
- Extensive range of dies to suit crimping of hydraulic hoses
- Easy set up and maintenance
- Fast and reliable
- Numerical micrometer
- Model shown equipped with SCE control panel
- Calliper option on SCE control panel
- Bluetooth as standard on SC and SCE control panels

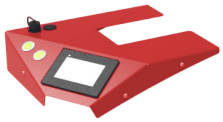
CONTROL OPTIONS AVAILABLE ON REQUEST



SC



SCE



SCS

TECHNICAL SPECIFICATIONS

CRIMP RANGE	4 - 76 mm (0.157 - 2.992”)
CRIMP FORCE	240 t
OPENING WITH DIES	+38 mm (+1.496”)
COMPLETE OPENING	118 mm (4.645”)
MASTER DIE LENGTH	100 mm (3.937”)
STANDARD DIES	15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 48, 51, 57, 62, 66, 70
NOISE LEVEL	<70 dB A
MOTOR	4.0 kW
VOLTAGES	220/240 V, 3Ph, 50 Hz 380/415 V, 3Ph, 50 Hz 208/240 V, 3Ph, 60 Hz 380/415 V, 3Ph, 60 Hz
	Other voltages available on request
DIMENSIONS	765 x 400 x 650 mm (30 x 16 x 26”)
NET WEIGHT	165 kg (364 lb)

OPTIONAL



Maintenance Kit



Marking Dies



Die Storage Panel



Die Storage Table



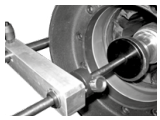
Electrical Footswitch



Quick Change Gun



Aluminium Quick Change Gun



Mechanical Backstop



Die Sets for Brake & Air Conditioning Hoses



Die Storage Panel EVO

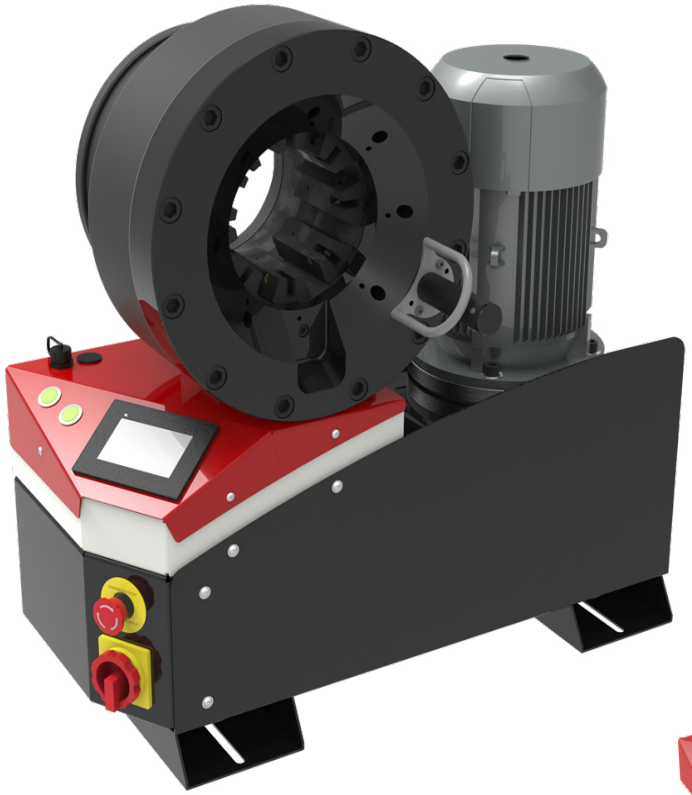
MB 240 EVO

PROFESSIONAL WORKSHOP BENCHTOP

HOSE AND FITTINGS SELECTION		
HOSE TYPE	FITTING TYPE	MAX HOSE SIZE
2 WIRE BRAID & TEXTILE	MF2000 MULTIFIT; MF3000 OPF; MF3000 OPK	2"
3 WIRE (1 BRAID + 2 SPIRAL)	MF2000 MULTIFIT; MF2000 INTERLOCK PLUS; MF2000 SPIRALFIT	1 ¼"
4 WIRE SPIRALS	MF2000 MULTIFIT; MF3000 OPK	2"
4 WIRE SPIRALS	MF2000 INTERLOCK PLUS; MF2000 SPIRALFIT	1 ¼"
6 WIRE SPIRAL	MF2000 INTERLOCK PLUS;	1"

MB 350 EVO / MB 350 EVO L

FULL SERVICE WORKSHOP
BENCHTOP; VERY HIGH CRIMP FORCE



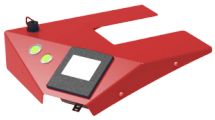
KEY FEATURES

- Crimp force of up to 350 tonnes for hoses up to 3”
- Easy to use and robust
- Automatic maintenance alerts
- Groove for 90° long drop fittings
- Also available as S CRIMP 350 L with 4.0 kW motor
- Numerical micrometer
- Model shown equipped with SCS control panel
- Calliper option on SCE control panel
- Bluetooth as standard on SC and SCE control panels

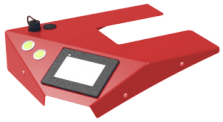
CONTROL OPTIONS AVAILABLE ON REQUEST



SC



SCE



SCS

TECHNICAL SPECIFICATIONS

CRIMP RANGE
4 - 130 mm (0.157 - 5.118”)

CRIMP FORCE
350 t

OPENING WITH DIES
+54 mm (+2.125”)

COMPLETE OPENING
180 mm (7.086”)

MASTER DIE LENGTH
115 mm (4.523”)

STANDARD DIES
15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 48, 51, 57, 62, 66, 70, 73, 76

NOISE LEVEL
<70 dB A

MOTOR
5.5 kW / 4 kW

VOLTAGES
220/240 V, 3Ph, 50 Hz
380/415 V, 3Ph, 50 Hz
208/240 V, 3Ph, 60 Hz
380/415 V, 3Ph, 60 Hz

DIMENSIONS
765 x 400 x 750 mm
(30 x 16 x 30”)

NET WEIGHT
262 kg (578 lb)

TECHNICAL FEATURES
-Automatic maintenance alerts
-Cylinder protection against dust - durable design
-Also available as S CRIMP 350 EVO L with 4.0 kW Motor

OPTIONAL



Maintenance Kit



Marking Dies



Die Storage Panel



Die Storage Table



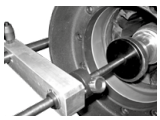
Electrical Footswitch



Quick Change Gun



Aluminium Quick Change Gun



Mechanical Backstop



Die Sets for Brake & Air Conditioning Hoses



Die Storage Panel EVO

MB 350 EVO / MB 350 EVO L

FULL SERVICE WORKSHOP
BENCHTOP; VERY HIGH CRIMP FORCE

HOSE AND FITTINGS SELECTION		
HOSE TYPE	**FITTING TYPE**	**MAX HOSE SIZE**
2 WIRE BRAID & TEXTILE	MF2000 MULTIFIT; MF3000 OPF; MF3000 OPK	3"
3 WIRE (1 BRAID + 2 SPIRAL)	MF2000 MULTIFIT; MF2000 INTERLOCK PLUS; MF2000 SPIRALFIT;	1 ¼"
4 WIRE SPIRALS	MF2000 MULTIFIT; MF2000 INTERLOCK PLUS; MF2000 SPIRALFIT; MF3000 OPK	2"
5 WIRE (4 SPIRAL + 1 BRAID)	MF2000 INTERLOCK PLUS	1 ¼"
7 WIRE (6 SPIRAL + 1 BRAID)	MF2000 INTERLOCK SUPER	1 ½"
6 WIRE SPIRALS (350 BAR / 5000psi)	MF2000 INTERLOCK PLUS; MF2000 SPIRALFIT	2"
6 WIRE SPIRAL (420 BAR / 5000psi)	MF2000 INTERLOCK PLUS; MF2000 INTERLOCK SUPER	1 ½"
8 WIRE SPIRALS	MF2000 INTERLOCK PLUS	1 ¼"

GOLDENCRIMP 420 EVO

ASSEMBLING FOR FIELD REPAIR BENCHTOP CRIMP MACHINE



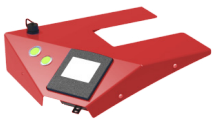
KEY FEATURES

- High crimping force of 420 tonnes
- Robust design for transport and operation in harsh environments
- Protected cylinders for trouble-free operation in high dust environments
- Large opening suitable for large bore hoses
- Easy maintenance due to foam pads and dust collector
- Numerical micrometer
- Model shown equipped with SCS control panel
- Calliper option on SCE control panel
- Bluetooth as standard on SC and SCE control panels

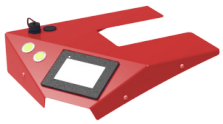
CONTROL OPTIONS AVAILABLE ON REQUEST



SC



SCE



SCS

TECHNICAL SPECIFICATIONS

CRIMP RANGE	**NOISE LEVEL**
4 - 130 mm (0.157 - 5.118")	<70 dB A
CRIMP FORCE	**MOTOR**
420 t	5.5 kW
OPENING WITH DIES	**VOLTAGES**
+48 mm (+1.9 inch)	220/240 V, 3Ph, 50 Hz
COMPLETE OPENING	380/415 V, 3Ph, 50 Hz
178 mm (7.0 inch)	208/240 V, 3Ph, 60 Hz
MASTER DIE LENGTH	380/415 V, 3Ph, 60 Hz
120 mm (4.724 inch)	**DIMENSIONS**
STANDARD DIES	765 x 500 x 800 mm
15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 48, 51, 57, 62, 66, 70, 73, 76	(30 x 20 x 32“)
	PACKAGING
	745 x 1150 x 945 mm
	(29 x 45 x 37”)
	NET WEIGHT
	395 kg (871 lb)

OPTIONAL



Maintenance Kit



Marking Dies



Die Storage Panel



Die Storage Table



Electrical Footswitch



Quick Change Gun



Aluminium Quick Change Gun



Die Sets for Brake & Air Conditioning Hoses



Die Storage Panel EVO

GOLDENCRIMP 420 EVO

ASSEMBLING FOR FIELD REPAIR BENCHTOP CRIMP MACHINE

HOSE AND FITTINGS SELECTION		
HOSE TYPE	**FITTING TYPE**	**MAX HOSE SIZE**
2 WIRE BRAID & TEXTILE	MF2000 MULTIFIT; MF3000 OPF; MF3000 OPK	4"
3 WIRE (1 BRAID + 2 SPIRAL)	MF2000 MULTIFIT; MF2000 INTERLOCK PLUS; MF2000 SPIRALFIT;	1 ¼"
4 WIRE SPIRALS	MF2000 MULTIFIT; MF3000 OPK; MF2000 INTERLOCK PLUS; MF2000 SPIRALFIT;	3"
5 WIRE (4 SPIRAL + 1 BRAID)	MF2000 INTERLOCK PLUS	1 ¼"
7 WIRE (6 SPIRAL + 1 BRAID)	MF2000 INTERLOCK SUPER	1 ½"
6 WIRE SPIRALS	MF2000 INTERLOCK SUPER; MF2000 SPIRALFIT-GX; MF2000 INTERLOCK PLUS; MF2000 SPIRALFIT	2"
8 WIRE SPIRALS	MF2000 INTERLOCK SUPER	1 ½"

GOLDENCRIMP 450

ASSEMBLING FOR FIELD REPAIR BENCHTOP CRIMP MACHINE



KEY FEATURES

- High crimp force (450 tonnes)
- Large opening
- Wide family of dies for industrial hoses
- Long master dies
- Robust - designed for harsh environments
- Low noise level
- Easy die set-up with ergonomic gun
- Metallic guard for the set stop

STANDARD



Electrical Footswitch

OPTIONAL



Die Storage Panel



Die Storage Table



Die Sets for Brake & Air Conditioning Hoses



Quick Change Gun



Aluminium Quick Change Gun



Marking Dies

TECHNICAL SPECIFICATIONS

CRIMP RANGE
4 - 130 mm (0.157 - 5.118")

CRIMP FORCE
450 t

OPENING WITH DIES
+70 mm (+2.755")

COMPLETE OPENING
197 mm (7.755")

MASTER DIE LENGTH
140 mm (5.512")

STANDARD DIES
15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 48, 51, 57, 62, 66, 70, 73, 76

NOISE LEVEL
<65 dB A

MOTOR
5.5 kW

VOLTAGES
220/240 V, 3Ph, 50 Hz
380/415 V, 3Ph, 50 Hz
208/240 V, 3Ph, 60 Hz
380/415 V, 3Ph, 60 Hz

DIMENSIONS
830 x 775 x 1450 mm
(33 x 31 x 57")

PACKAGING
1120 x 1020 x 1770 mm
(44 x 40 x 70")

NET WEIGHT
720 kg (1587 lb)

HOSE AND FITTINGS SELECTION

HOSE TYPE	FITTING TYPE	MAX HOSE SIZE
2 WIRE BRAID & TEXTILE	MF2000 MULTIFIT; MF3000 OPF; MF3000 OPK	4"
1 WIRE BRAID + 2 WIRE SPIRAL	MF2000 MULTIFIT; MF2000 INTERLOCK PLUS; MF2000 SPIRALFIT;	1 ¼"
4 WIRE SPIRALS	MF2000 MULTIFIT; MF3000 OPK; MF2000 INTERLOCK PLUS; MF2000 SPIRALFIT;	3"
5 WIRE (4 SPIRAL + 1 BRAID)	MF2000 INTERLOCK PLUS	1 ¼"
7 WIRE (6 SPIRAL + 1 BRAID)	MF2000 INTERLOCK SUPER	1 ½"
6 WIRE SPIRALS	MF2000 INTERLOCK PLUS; MF2000 SPIRALFIT	3"
6 WIRE SPIRALS	MF2000 INTERLOCK SUPER; MF2000 SPIRALFIT-GX	2"
8 WIRE SPIRALS	MF2000 INTERLOCK SUPER	1 ½"

MRV 137 EVO R

FIELD SERVICE & MOBILE WORKSHOP MOBILE VAN



KEY FEATURES

- Ergonomically positioned adjustable crimping head
- Axis of crimping head oriented perpendicular to the operator
- Optional quick change tool for dies available in Plastic or Aluminium
- Compact design
- Range of standard dies available
- Optional die storage panel available

OPTIONAL



Maintenance Kit



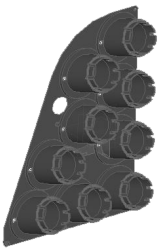
Die Storage Panel



Die Storage Table



Quick Change Gun



Die Storage Panel EVO R



Aluminium Quick Change Gun

TECHNICAL SPECIFICATIONS

CRIMP RANGE	**NOISE LEVEL**
6 - 56 mm (0.517 - 2.205")	70 dB A
CRIMP FORCE	**MOTOR**
137 t	1.5 kW (12V)
OPENING WITH DIES	**VOLTAGES**
+28 mm (+1.102")	12 V
COMPLETE OPENING	**DIMENSIONS**
100 mm (3.937")	470 x 630 x 644 mm
MASTER DIE LENGTH	(19 x 25 x 25")
75 mm (2.952")	**NET WEIGHT**
STANDARD DIES	89 kg (196 lb)
15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 48, 51	**GROSS WEIGHT**
	105 kg (231 lb)

HOSE AND FITTINGS SELECTION

HOSE TYPE	FITTING TYPE	MAX HOSE SIZE
2 WIRE BRAID & TEXTILE	MF2000 MULTIFIT; MF3000 OPF; MF3000 OPK	1 ¼"
3 WIRE (1 BRAID + 2 SPIRAL)	MF2000 MULTIFIT	1 ¼"
4 WIRE SPIRALS	MF2000 MULTIFIT; MF3000 OPK	1 ¼"
3 WIRE (1 BRAID + 2 SPIRAL)	MF2000 INTERLOCK PLUS; MF2000 SPIRALFIT	¾"
4 WIRE SPIRALS	MF2000 INTERLOCK PLUS; MF2000 SPIRALFIT	¾"

MV 137 L

FIELD SERVICE & MOBILE WORKSHOP MOBILE VAN



KEY FEATURES

- Robust and compact design
- Lightweight
- High crimping speed
- Suitable also for 90° elbow fittings
- Cylinder protection

OPTIONAL



Maintenance Kit



Quick Change Gun



Aluminium Quick Change Gun



Die Storage Panel



Battery & Charger



Marking Dies



Die Sets for Brake & Air Conditioning Hoses



Front Die Storage

TECHNICAL SPECIFICATIONS

CRIMP RANGE	**MOTOR**
4 - 70 mm (0.157 - 2.756”)	2.0 kW
CRIMP FORCE	**VOLTAGES**
137 t	12 V
OPENING WITH DIES	24 V
+28 mm (+1.102”)	**DIMENSIONS**
COMPLETE OPENING	250 x 320 x 300 mm
100 mm (3.937”)	(10 x 13 x 12”)
MASTER DIE LENGTH	**PACKAGING**
75 mm (2.952”)	800 x 600 x 830 mm
STANDARD DIES	(31 x 24 x 33”)
15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 48, 51	**NET WEIGHT**
	86 kg (190 lb)
NOISE LEVEL	**GROSS WEIGHT**
72 dB A	102 kg (225 lb)
	TECHNICAL FEATURES
	Dimensions of power pack: 440 x 320 x 320 mm (17 x 13 x 13”)

HOSE AND FITTINGS SELECTION

HOSE TYPE	FITTING TYPE	MAX HOSE SIZE
2 WIRE BRAID & TEXTILE	MF2000 MULTIFIT; MF3000 OPF; MF3000 OPK	1 ¼"
3 WIRE (1 BRAID + 2 SPIRAL)	MF2000 MULTIFIT	1 ¼"
4 WIRE SPIRALS	MF2000 MULTIFIT; MF3000 OPK	1 ¼"
3 WIRE (1 BRAID + 2 SPIRAL)	MF2000 INTERLOCK PLUS; MF2000 SPIRALFIT	¾"
4 WIRE SPIRALS	MF2000 INTERLOCK PLUS; MF2000 SPIRALFIT	¾"

MV 240

FIELD SERVICE & MOBILE WORKSHOP MOBILE VAN



KEY FEATURES

- Robust design
- Ergonomic micrometer
- High crimping speed
- Radial movement of the dies
- Cylinder protection
- Remote head mounting option possible

OPTIONAL



Maintenance Kit



Quick Change Gun



Aluminium Quick Change Gun



Die Storage Panel



Battery & Charger



Marking Dies



Die Sets for Brake & Air Conditioning Hoses



Front Die Storage

TECHNICAL SPECIFICATIONS

CRIMP RANGE	**MOTOR**
4 - 76 mm (0.157 - 2.992")	2.0 kW
CRIMP FORCE	**VOLTAGES**
240 t	12 V
OPENING WITH DIES	24 V
+38 mm (+1.496")	220/240 V, 3Ph, 50 Hz
COMPLETE OPENING	380/415 V, 3Ph, 50 Hz
118 mm (4.646")	208/240 V, 3Ph, 60 Hz
MASTER DIE LENGTH	380/415 V, 3Ph, 60 Hz
100 mm (3.937")	**DIMENSIONS**
STANDARD DIES	650 x 550 x 670 mm
15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 48, 51, 57, 62, 66, 70	(26 x 22 x 26")
NOISE LEVEL	**PACKAGING**
72 dB A	800 x 600 x 830 mm
	(31 x 24 x 33")
	NET WEIGHT
	145 kg (320 lb)
	GROSS WEIGHT
	180 kg (397 lb)

HOSE AND FITTINGS SELECTION

HOSE TYPE	FITTING TYPE	MAX HOSE SIZE
2 WIRE BRAID & TEXTILE	MF2000 MULTIFIT; MF3000 OPF; MF3000 OPK	2"
3 WIRE (1 BRAID + 2 SPIRAL)	MF2000 MULTIFIT; MF2000 INTERLOCK PLUS; MF2000 SPIRALFIT	1 ¼"
4 WIRE SPIRALS	MF2000 MULTIFIT; MF3000 OPK	2"
4 WIRE SPIRALS	MF2000 INTERLOCK PLUS; MF2000 SPIRALFIT	1 ¼"
6 WIRE SPIRAL	MF2000 INTERLOCK PLUS;	1"

MV 240 L

FIELD SERVICE & MOBILE WORKSHOP MOBILE VAN



KEY FEATURES

- Robust design
- Ergonomic micrometer
- High crimping speed
- Radial movement of the dies
- Cylinder protection

OPTIONAL



Maintenance Kit



Quick Change Gun



Aluminium Quick Change Gun



Die Storage Panel



Battery & Charger



Marking Dies



Die Sets for Brake & Air Conditioning Hoses



Front Die Storage



Ergonomic Micrometer

TECHNICAL SPECIFICATIONS

CRIMP RANGE	**MOTOR**
4 - 76 mm (0.157 - 2.992”)	2.0 kW
CRIMP FORCE	**VOLTAGES**
240 t	12 V
OPENING WITH DIES	24 V
+38 mm (+1.496”)	220/240 V, 3Ph, 50 Hz
COMPLETE OPENING	380/415 V, 3Ph, 50 Hz
118 mm (4.646”)	208/240 V, 3Ph, 60 Hz
MASTER DIE LENGTH	380/415 V, 3Ph, 60 Hz
100 mm (3.937”)	**DIMENSIONS**
STANDARD DIES	320 x 360 x 350 mm
15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 48, 51, 57, 62, 66, 70	(13 x 13.5 x 14”)
NOISE LEVEL	**PACKAGING**
72 dB A	800 x 600 x 830 mm
TECHNICAL FEATURES	(31 x 24 x 33”)
Dimensions of power pack: 440 x 320 x 320 mm (17 x 13 x 13”)	**NET WEIGHT**
	130 kg (287 lb)
	GROSS WEIGHT
	180 kg (397 lb)

HOSE AND FITTINGS SELECTION

HOSE TYPE	FITTING TYPE	MAX HOSE SIZE
2 WIRE BRAID & TEXTILE	MF2000 MULTIFIT; MF3000 OPF; MF3000 OPK	2"
3 WIRE (1 BRAID + 2 SPIRAL)	MF2000 MULTIFIT; MF2000 INTERLOCK PLUS; MF2000 SPIRALFIT	1 ¼"
4 WIRE SPIRALS	MF2000 MULTIFIT; MF3000 OPK	2"
4 WIRE SPIRALS	MF2000 INTERLOCK PLUS; MF2000 SPIRALFIT	1 ¼"
6 WIRE SPIRAL	MF2000 INTERLOCK PLUS;	1"

MV 350

FIELD SERVICE & MOBILE / CONTAINER WORKSHOP MOBILE VAN



KEY FEATURES

- Robust design
- Large opening
- High crimping force
- Ergonomic micrometer
- High crimping speed
- Radial movement of the dies
- Cylinder protection
- Remote head mounting option possible

TECHNICAL SPECIFICATIONS

CRIMP RANGE	**VOLTAGES**
4 - 130 mm (0.157 - 5.118”)	12 V
CRIMP FORCE	24 V
350 t	220/240 V, 3Ph, 50 Hz
OPENING WITH DIES	380/415 V, 3Ph, 50 Hz
+54 mm (+2.125”)	208/240 V, 3Ph, 60 Hz
COMPLETE OPENING	380/415 V, 3Ph, 60 Hz
180 mm (7.086”)	**DIMENSIONS**
MASTER DIE LENGTH	650 x 550 x 750 mm
115 mm (4.528”)	(26 x 22 x 30”)
STANDARD DIES	**PACKAGING**
15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 48, 51, 57, 62, 66, 70, 73, 76	800 x 600 x 830 mm
	(31 x 24 x 33”)
NOISE LEVEL	**NET WEIGHT**
<65 dB A	210 kg (463 lb)
MOTOR	**GROSS WEIGHT**
2.0 kW	260 kg (573 lb)
	SAFETY REMARK
	Possible limitations in case of double elbow fittings

OPTIONAL



Maintenance Kit



Quick Change Gun



Aluminium Quick Change Gun



Die Storage Panel



Battery & Charger



Marking Dies



Die Sets for Brake & Air Conditioning Hoses



Front Die Storage

MV 350

FIELD SERVICE & MOBILE / CONTAINER WORKSHOP MOBILE VAN

HOSE AND FITTINGS SELECTION		
HOSE TYPE	**FITTING TYPE**	**MAX HOSE SIZE**
2 WIRE BRAID & TEXTILE	MF2000 MULTIFIT; MF3000 OPF; MF3000 OPK	3"
3 WIRE (1 BRAID + 2 SPIRAL)	MF2000 MULTIFIT; MF2000 INTERLOCK PLUS; MF2000 SPIRALFIT;	1 ¼"
4 WIRE SPIRALS	MF2000 MULTIFIT; MF2000 INTERLOCK PLUS; MF2000 SPIRALFIT; MF3000 OPK	2"
5 WIRE (4 SPIRAL + 1 BRAID)	MF2000 INTERLOCK PLUS	1 ¼"
7 WIRE (6 SPIRAL + 1 BRAID)	MF2000 INTERLOCK SUPER	1 ½"
6 WIRE SPIRAL	MF2000 INTERLOCK PLUS; MF2000 INTERLOCK SUPER; MF2000 SPIRALFIT	1 ½"

MS 140

ASSEMBLING FOR MASS PRODUCTION
STAND TYPE CRIMP MACHINE, SCS SYSTEM



KEY FEATURES

- Safe Crimp System (SCS) control
- Large production capacity (small/medium bore)
- Low noise level
- Precise
- Robust
- Fast crimping
- Easy die set-up with ergonomic gun

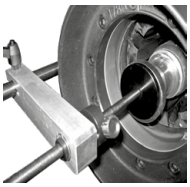
OPTIONAL



Aluminium Quick Change Gun



Electrical Footswitch



Mechanical Backstop



Mirror



Back View Camera

TECHNICAL SPECIFICATIONS

CRIMP RANGE	**NOISE LEVEL**
4 - 70 mm (0.157 - 2.756”)	<69 dB A
CRIMP FORCE	**MOTOR**
140 t	5.5 kW
OPENING WITH DIES	**VOLTAGES**
+45 mm (+1.772”)	220/240 V, 3Ph, 50 Hz
COMPLETE OPENING	380/415 V, 3Ph, 50 Hz
125 mm (4.921”)	208/240 V, 3Ph, 60 Hz
MASTER DIE LENGTH	**DIMENSIONS**
80 mm (3.150”)	890 x 810 x 1390 mm
STANDARD DIES	(35 x 32 x 55”)
15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 48	**PACKAGING**
	1120 x 1020 x 1770 mm
	(44 x 40 x 70”)
	NET WEIGHT
	675 kg (1488 lb)

HOSE AND FITTINGS SELECTION

HOSE TYPE	FITTING TYPE	MAX HOSE SIZE
2 WIRE BRAID & TEXTILE	MF2000 MULTIFIT; MF3000 OPF; MF3000 OPK	1 ¼"
3 WIRE (1 BRAID + 2 SPIRAL)	MF2000 MULTIFIT;	1 ¼"
4 WIRE SPIRALS	MF2000 MULTIFIT; MF3000 OPK	1 ¼"
3 WIRE (1 BRAID + 2 SPIRAL)	MF2000 INTERLOCK PLUS; MF2000 SPIRALFIT	1"
4 WIRE SPIRALS	MF2000 INTERLOCK PLUS; MF2000 SPIRALFIT	1"

MS 320

ASSEMBLING FOR MASS PRODUCTION
STAND TYPE CRIMP MACHINE, SCS SYSTEM



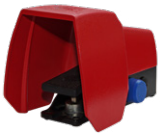
KEY FEATURES

- High crimp force
- Large opening
- Safe Crimp System (SCS) control
- Wide family of dies for industrial hoses
- Robust structure
- Fast and ergonomic
- Low noise level
- Easy die-set up with ergonomic gun

STANDARD


Quick Change Gun


SCS Safe Crimp System


Electrical Footswitch


Die Storage


Mirror

TECHNICAL SPECIFICATIONS

CRIMP RANGE	**MOTOR**
4 - 130 mm (0.157 - 5.118")	5.5 kW / 7.5 kW (Fast Version)
CRIMP FORCE	**VOLTAGES**
320 t	220/240 V, 3Ph, 50 Hz
OPENING WITH DIES	380/415 V, 3Ph, 50 Hz
+80 mm (+3.149")	208/240 V, 3Ph, 60 Hz
COMPLETE OPENING	380/415 V, 3Ph, 60 Hz
207 mm (8.149")	**DIMENSIONS**
MASTER DIE LENGTH	1240 x 995 x 1615 mm
100 mm (3.937")	(49 x 39 x 64")
STANDARD DIES	**PACKAGING**
15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 48, 51, 57, 62, 66, 70, 73, 76	1400 x 1100 x 1960 mm (55 x 43 x 77")
NOISE LEVEL	**NET WEIGHT**
<65 dB A	2000 kg (4409 lb)
	GROSS WEIGHT
	2300 kg (5071 lb)

OPTIONAL


Die Storage Panel


Marking Dies


Back View Camera


Aluminium Quick Change Gun


Mechanical Backstop


Side Table & Pushing Panel


Die Sets for Brake & Air Conditioning Hoses


Automatic Central Greasing System

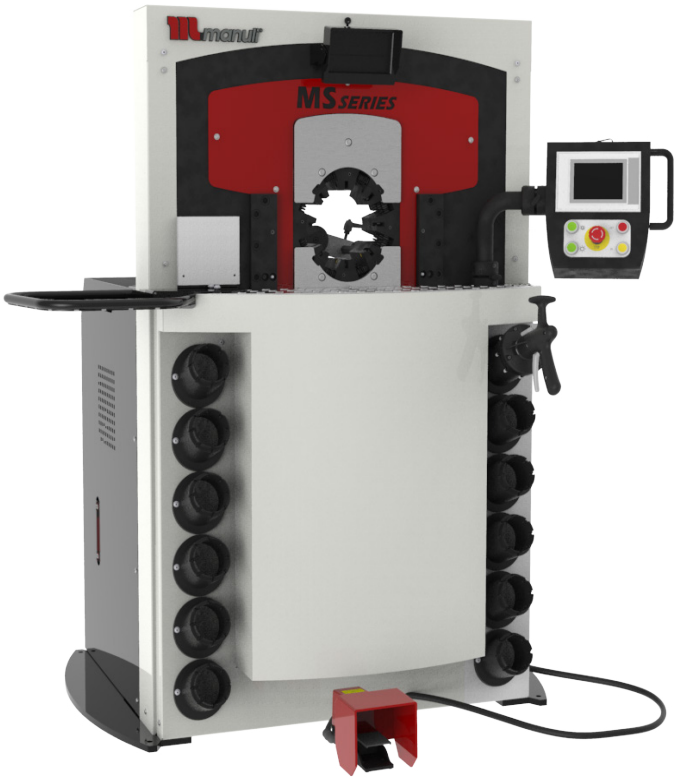
MS 320

ASSEMBLING FOR MASS PRODUCTION
STAND TYPE CRIMP MACHINE, SCS SYSTEM

HOSE AND FITTINGS SELECTION		
HOSE TYPE	**FITTING TYPE**	**MAX HOSE SIZE**
2 WIRE BRAID & TEXTILE	MF2000 MULTIFIT; MF3000 OPF; MF3000 OPK;	3"
3 WIRE (1 BRAID + 2 SPIRAL)	MF2000 MULTIFIT; MF2000 INTERLOCK PLUS; MF2000 SPIRALFIT;	1 ¼"
4 WIRE SPIRALS	MF2000 MULTIFIT; MF2000 INTERLOCK PLUS; MF2000 SPIRALFIT; MF3000 OPK	2"
5 WIRE (4 SPIRAL + 1 BRAID)	MF2000 INTERLOCK PLUS	1 ¼"
7 WIRE (6 SPIRAL + 1 BRAID)	MF2000 INTERLOCK SUPER	1 ½"
6 WIRE SPIRALS (ROCKMASTER/13 - GOLDENISO/35 XTRAFLEX - SHIELDMASTER/35 - DIAMONDSPIR)	MF2000 INTERLOCK PLUS; MF2000 SPIRALFIT	2"
8 WIRE SPIRALS	MF2000 INTERLOCK PLUS	1 ¼"

MS 480

ASSEMBLING FOR MASS PRODUCTION
STAND TYPE CRIMP MACHINE, SCS SYSTEM



KEY FEATURES

- High crimp force
- Large opening
- Safe Crimp System (SCS) control
- Wide family of dies for industrial hoses
- Long master dies
- Robust
- Low noise level
- Easy die set-up with ergonomic gun

STANDARD


Quick Change Gun


SCS Safe Crimp System


Electrical Footswitch


Die Storage


Mirror

TECHNICAL SPECIFICATIONS

CRIMP RANGE	**MOTOR**
4 - 160 mm (0.157 - 6.299”)	5.5 kW
CRIMP FORCE	**VOLTAGES**
480 t	220/240 V, 3Ph, 50 Hz
OPENING WITH DIES	380/415 V, 3Ph, 50 Hz
+85 mm (+3.346”)	208/240 V, 3Ph, 60 Hz
COMPLETE OPENING	380/415 V, 3Ph, 60 Hz
212 mm (8.346”)	**DIMENSIONS**
MASTER DIE LENGTH	1300 x 900 x 1700 mm
125 mm (4.921”)	(51 x 35 x 67”)
STANDARD DIES	**PACKAGING**
15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 48, 51, 57, 62, 66, 70, 73, 76	1400 x 1100 x 1960 mm (55 x 43 x 77”)
NOISE LEVEL	**NET WEIGHT**
<65 dB A	2200 kg (4850 lb)
	GROSS WEIGHT
	2430 kg (5357 lb)

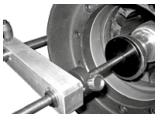
OPTIONAL


Die Storage Panel


Marking Dies


Back View Camera


Aluminium Quick Change Gun


Mechanical Backstop


Side Table & Pushing Panel


Die Sets for Brake & Air Conditioning Hoses


Automatic Central Greasing System

MS 480

ASSEMBLING FOR MASS PRODUCTION
STAND TYPE CRIMP MACHINE, SCS SYSTEM

HOSE AND FITTINGS SELECTION		
HOSE TYPE	**FITTING TYPE**	**MAX HOSE SIZE**
2 WIRE BRAID & TEXTILE	MF2000 MULTIFIT; MF3000 OPF; MF3000 OPK;	4"
3 WIRE (1 BRAID + 2 SPIRAL)	MF2000 MULTIFIT; MF2000 INTERLOCK PLUS; MF2000 SPIRALFIT;	1 ¼"
4 WIRE SPIRALS	MF2000 MULTIFIT; MF2000 INTERLOCK PLUS; MF2000 SPIRALFIT; MF3000 OPK	4"
5 WIRE (4 SPIRAL + 1 BRAID)	MF2000 INTERLOCK PLUS	1 ¼"
7 WIRE (6 SPIRAL + 1 BRAID)	MF2000 INTERLOCK SUPER	1 ½"
7 WIRE (6 SPIRAL + 1 BRAID)	MF2000 INTERLOCK PLUS	2"
6 WIRE SPIRALS	MF2000 INTERLOCK PLUS; MF2000 SPIRALFIT	3"
6 WIRE SPIRALS	MF2000 INTERLOCK SUPER; MF2000 SPIRALFIT-GX	2"
8 WIRE SPIRALS	MF2000 INTERLOCK SUPER	1 ½"

MS 800

ASSEMBLING FOR LARGE BORE HOSES
STAND TYPE CRIMP MACHINE, SCS CONTROL



KEY FEATURES

- Designed for heavy duty large bore hydraulic hoses
- High power and speed
- Ergonomically designed for large bore hoses
- Safe Crimp System (SCS) for maximum reliability during the crimping process
- Large opening up to 8”
- Long master dies
- Very high crimping force

STANDARD



Electrical Footswitch



SCS Safe Crimp System



Hose Support

TECHNICAL SPECIFICATIONS

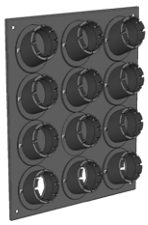
CRIMP RANGE	**MOTOR**
4 - 230 mm (0.157 - 9.055”)	7.5 kW
CRIMP FORCE	**VOLTAGES**
800 t	380/415 V, 3Ph, 50 Hz
OPENING WITH DIES	**DIMENSIONS**
+100 mm (+3.937”)	1400 x 1400 x 2060 mm
COMPLETE OPENING	(55 x 55 x 81”)
347 mm (13.661”)	**NET WEIGHT**
MASTER DIE LENGTH	4300 kg (9480 lb)
180 mm (7.087”)	**GROSS WEIGHT**
NOISE LEVEL	5000 kg (11023 lb)
< 70 dB A	**TECHNICAL FEATURES**

-Machine platform equipped with rollers to support the hose at working height (1100 mm) in order to handle large bore hoses more easily
-Supplied as standard: Intermediate dies 250/130

OPTIONAL



Quick Change Gun



Die Storage Panel



Back View Camera

MS 800

ASSEMBLING FOR LARGE BORE HOSES
STANDARD TYPE CRIMP MACHINE, SCS CONTROL

HOSE AND FITTINGS SELECTION		
HOSE TYPE	**FITTING TYPE**	**MAX HOSE SIZE**
INDUSTRIAL TEXTILE HOSES	VARIOUS	8"
2 WIRE BRAID & TEXTILE	MF2000 MULTIFIT; MF3000 OPF; MF3000 OPK;	4"
3 WIRE (1 BRAID + 2 SPIRAL)	MF2000 MULTIFIT; MF2000 INTERLOCK PLUS; MF2000 SPIRALFIT;	1 ¼"
4 WIRE SPIRALS	MF2000 MULTIFIT; MF2000 INTERLOCK PLUS; MF2000 SPIRALFIT; MF3000 OPK	4"
5 WIRE (4 SPIRAL + 1 BRAID)	MF2000 INTERLOCK PLUS	1 ¼"
7 WIRE (6 SPIRAL + 1 BRAID)	MF2000 INTERLOCK SUPER	3"
6/8 WIRE SPIRALS	MF2000 INTERLOCK PLUS; MF2000 SPIRALFIT; MF2000 INTERLOCK SUPER	3"

MS 320 OPEN HEAD

XXL WORKSHOP



KEY FEATURES

- Unique on market
- Lateral opening
- No limit on end connection diameter
- Easy to use
- Separated power pack
- Integrated safety system

TECHNICAL SPECIFICATIONS

CAPACITY*	**VOLTAGES**
Industrial: 6”	230 V, 3 Ph
CRIMP RANGE	400 V, 3 Ph
4 - 230 mm (0.157 - 9.055”)	**MACHINE DIMENSIONS**
CRIMP FORCE	1265 x 680 x 1800 mm
320 t	(50 x 27 x 71”)
OPENING WITH DIES	**POWER PACK DIMENSIONS**
+55 mm (+2.165 ”)	890 x 800 x 1050 mm
COMPLETE OPENING	(35 x 31 x 41”)
260 mm (10.236”)	**MACHINE WEIGHT**
LATERAL OPENING	1700 kg (3748 lb)
247 mm (9.724”)	**POWER PACK WEIGHT**
MASTER DIE LENGTH	400 kg (882 lb)
125 mm (4.921”)	**TECHNICAL FEATURES**
MOTOR	-Die sizes available upon request
5.5 kW	

*Indicative capacities depending on hose and fitting type

STANDARD



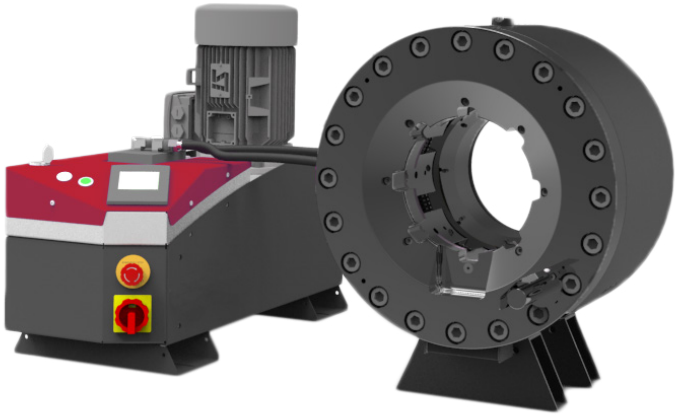
Electrical Footswitch



Die Storage

MS 450-200

XXL WORKSHOP



KEY FEATURES

- High crimp force (450 tonnes)
- Large opening
- Wide family of dies for industrial hoses
- Long master dies
- Robust - designed for harsh environments
- Low noise level
- Easy die set-up with ergonomic gun
- Metallic guard for the set stop
- Separated crimping head allowing flexible workshop arrangements

TECHNICAL SPECIFICATIONS

CAPACITY*	**MOTOR**
Industrial: 4” & 6”	5.5 kW
CRIMP RANGE	**VOLTAGES**
4 - 180 mm (0.157 - 7.087”)	220/240 V, 3Ph, 50 Hz
CRIMP FORCE	380/415 V, 3Ph, 50 Hz
450 t	208/240 V, 3Ph, 60 Hz
OPENING WITH DIES	380/415 V, 3Ph, 60 Hz
+70 mm (+2.755”)	**DIMENSIONS**
COMPLETE OPENING	830 x 775 x 1450 mm
230 mm (9.055”)	(33 x 31 x 57”)
MASTER DIE LENGTH	**PACKAGING**
125 mm (4.921”)	1120 x 1020 x 1770 mm
STANDARD DIES	(44 x 40 x 70”)
15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 48, 51, 57, 62, 66, 70, 73, 76; Extra die sets: up to 180 mm; Die sizes available on request	**NET WEIGHT**
	450 kg (992 lb)

*Indicative capacities depending on hose and fitting type

OPTIONAL



Die Storage Panel



Die Storage Table



Quick Change Gun



Marking Dies



Aluminium Quick Change Gun



Die Sets for Brake & Air Conditioning Hoses



Electrical Footswitch

MS 550/MS 550-16

XXL WORKSHOP



KEY FEATURES

- Very large opening
- Fixed bottom die
- Long dies available
- High crimping force
- Symmetric machine
- Low working height
- Ergonomic
- Safe Crimp System (SCS)
- Step crimping capability with SCS

STANDARD



SCS Safe Crimp System



Die Storage

OPTIONAL



Back View Camera

TECHNICAL SPECIFICATIONS

	MS 550	MS 550-16
CAPACITY*	Industrial: 12”	Industrial: 16”
CRIMP FORCE	550 t	550 t
COMPLETE OPENING	490 mm (19.291”)	660 mm (25.984”)
OPENING WITH DIES	+130 mm (+5.118 ”)	+160 mm (6.299”)
MASTER DIE LENGTH	200 mm (7.874”)	200 mm (7.874”)
MOTOR	5.5 kW	5.5 kW
VOLTAGES	230 V, 3 Ph 400 V, 4 Ph	230 V, 3 Ph 400 V, 4 Ph
MACHINE DIMENSIONS	1300 x 1050 x 2230 mm (35 x 41 x 88”)	1450 x 1100 x 2300 mm (57 x 43 x 91”)
POWER PACK DIMENSIONS	800 x 790 x 1650 mm (31 x 31 x 65”)	800 x 790 x 1650 mm (31 x 31 x 65”)
MACHINE WEIGHT	4000 kg (8818 lb)	4300 kg (9480 lb)
POWER PACK WEIGHT	500 kg (1102 lb)	500 kg (1102 lb)
TECHNICAL FEATURES	Die sizes available upon request	

*Indicative capacities depending on hose and fitting type

ACCESSORIES AND TOOLS

SAFE CRIMP (SC) SMART CONTROL PANEL

A basic smart control panel, which includes maintenance functions essential for keeping the machine in good condition.

Maintenance functions include:

- **2 Counters:** 1 daily counter and 1 machine cycle counter
- **3 LED Indicator Lights:** 1 for daily maintenance, 1 for advanced maintenance and 1 for expert maintenance
- **Semi-automatic function:** The semi-automatic opening is ideal for serial assemblies as it can be adjusted specifically to allow the fitting to pass through the dies with minimal clearance, saving energy by reducing the cycle time.
- **Integrated Bluetooth:** Receive crimping data from the Manuli crimping app to reduce the risk of operator error



SAFE CRIMP ELECTRICAL PANEL (SCE)

A modern touch screen with electronic buttons, which includes maintenance functions essential for keeping the machine in good condition.

Maintenance functions include:

- **Functions of the Safe Crimp Panel**
- **Electronic micrometer** with automatic die selection and the ability to save up to 25 configurations
- **Integrated Bluetooth:** Receive crimping data from the Manuli crimping app to reduce the risk of operator error
- **Optional calliper control:** Integrated vernier caliper connected to the machine which allows automatic correction of crimping diameters based on measured values



ACCESSORIES AND TOOLS

SAFE CRIMP SYSTEM





Benefits of Safe Crimp System control for hose assembly activity:

- Friendly and easy setting of crimping parameters including:
  - √ Pre-set of crimp Ø calibration to compensate ferrule elastic rebound
  - √ Reminder of dies to be used
  - √ Easy automatic opening setting
- Storage of recurrent and customised crimp recipes: favourite crimp assemblies:
  - √ Short cuts for faster setting
  - √ No crimp Ø re-adjusting
  - √ Possibility to download your customised recipes by USB port and save on separate computer (CSV file)
- Production counter for batch quantity control:
  - √ Quality monitoring by: Automatic crimp Ø check (Only available on 7" screen)
  - √ Continuous crimp pressure measurement (Option on 4.5" screen)
  - √ Crimping pressure and count control for mistake proofing assembly (Option 4.5" screen)
- Operator identification (Log in / log out)
- Maintenance Warnings

MTB 2000 L

TEST BENCH, PROOF PRESSURE & CERTIFY STAND TYPE MACHINE



KEY FEATURES

Easy to use and robust

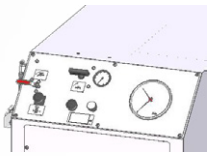
Safe: Steel Compartment, polycarbonate transparent window and metal mesh

Large testing area for up to 6 hoses

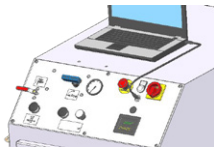
Pallet loading with a forklift

Variable pressure up to 2000 bar

STANDARD



Power Unit M



Power Unit E

TECHNICAL SPECIFICATIONS

INDICATIVE CAPACITY
1200 mm (48”)

HOSE CONNECTION
6 maximum

AIR CONSUMPTION
100 Nl/min

OPENING/CLOSING TIME
10-14 seconds

MAX PRESSURE
2000 bar (29000 psi)

INNER TANK CAPACITY
1700 x 790 x 200 mm
(67 x 31 x 8”)

DIMENSIONS (PANEL)
700 x 1200 x 1220 mm
(28 x 47 x 48”)

PACKAGING (TANK)
1600 x 1200 x 1280 mm
(63 x 47 x 50”)

PACKAGING (PANEL)
1000 x 1200 x 1280 mm
(39 x 47 x 50”)

WEIGHT
430 kg (948 lb)

NET WEIGHT
500 kg (1102 lb)

TECHNICAL FEATURES
-Minimum compressed air input 8.5 bar (123 psi)

FEATURES AND OPTIONS

DISPLAY FEATURES

M	Gauge measurement display
E	Numerical measurement colour display with ethernet port for mirror link connection with computer

FURTHER OPTIONS

- Autonomous filling pump
- Air blowing system for both models
- Second tank available on all models

MTB 2000 XL

TEST BENCH, PROOF PRESSURE & CERTIFY STAND TYPE MACHINE



Model shown XL ISD

KEY FEATURES

Easy to use and robust

Safe: Steel Compartment, polycarbonate transparent window and metal mesh

Large testing area for up to 6 hoses

Pallet loading with a forklift

Variable pressure up to 2000 bar

Print test data directly to USB drive or printer

ISD model supplied with colour printer

TECHNICAL SPECIFICATIONS

INDICATIVE CAPACITY	**PACKAGING (TANK)**
1200 mm (48”)	1600 x 1200 x 1280 mm
HOSE CONNECTION	(63 x 47 x 50”)
6 maximum	**PACKAGING (PANEL)**
AIR CONSUMPTION	1000 x 1200 x 1280 mm
100 Nl/min	(39 x 47 x 50”)
OPENING/CLOSING TIME	**WEIGHT**
10-14 seconds	600 kg (1323 lb)
MAX PRESSURE	**NET WEIGHT**
2000 bar (29000 psi)	500 kg (1102 lb)
INNER TANK CAPACITY	**TECHNICAL FEATURES**
1400 x 900 x 600 mm	-Minimum compressed air input 8.5 bar (123 psi) -Minimum test pressure 250 bar (3626 psi), with low pressure option 50 bar (725 psi) (only for XL ISD)
(55 x 35 x 24”)	
DIMENSIONS (PANEL)	
700 x 1200 x 1220 mm	
(28 x 47 x 48”)	

FEATURES AND OPTIONS

STANDARD OPTIONS

XL ISD:

- Light included
- Touch screen panel
- Printer

XL E:

- LED Light included
- Numerical measurement colour display with ethernet port for mirror link connection with computer

FURTHER OPTIONS

- Autonomous filling pump
- Air blowing system for both models
- Second tank available on all models
- Low pressure pump (50 bar - 300 bar) available on ISD model

MHP 80

DESCRIPTION	N°	CRIMP RANGE
DIE SET N. 06 - LENGTH 56 MM	6	06-08
DIE SET N. 08 - LENGTH 56 MM	8	08-10
DIE SET N. 10 - LENGTH 56 MM	10	10-12
DIE SET N. 12 - LENGTH 56 MM	12	12-15
DIE SET N. 15 - LENGTH 56 MM	***15***	***15-18***
DIE SET N. 18 - LENGTH 56 MM	***18***	***18-21***
DIE SET N. 21 - LENGTH 56 MM	***21***	***21-24***
DIE SET N. 24 - LENGTH 56 MM	***24***	***24-27***
DIE SET N. 27 - LENGTH 56 MM	***27***	***27-30***
DIE SET N. 30 - LENGTH 56 MM	***30***	***30-43***
KIT 6 DIES MHP80 (N.15 TO N.30)	-	-

- REFERENCES IN **BOLD** ARE INCLUDED IN THE STANDARD DIE KIT (ALSO IN **BOLD**)

MHP 110

PG.552

DESCRIPTION	N°	CRIMP RANGE
DIE SET N. 06 - LENGTH 56 MM	6	06-08
DIE SET N. 08 - LENGTH 56 MM	8	08-10
DIE SET N. 10 - LENGTH 56 MM	10	10-12
DIE SET N. 12 - LENGTH 56 MM	12	12-15
DIE SET N. 15 - LENGTH 56 MM	***15***	***15-18***
DIE SET N. 18 - LENGTH 56 MM	***18***	***18-21***
DIE SET N. 21 - LENGTH 56 MM	***21***	***21-24***
DIE SET N. 24 - LENGTH 56 MM	***24***	***24-27***
DIE SET N. 27 - LENGTH 56 MM	***27***	***27-30***
DIE SET N. 30 - LENGTH 56 MM	***30***	***30-39***
KIT 6 DIES MHP110 (N.15 TO N.30)	-	-

- REFERENCES IN **BOLD** ARE INCLUDED IN THE STANDARD DIE KIT (ALSO IN **BOLD**)

MHP 137

PG.553

DESCRIPTION	N°	CRIMP RANGE
DIE SET N. 4 - LENGTH 56 MM	4	04-05
DIE SET N. 6 - LENGTH 56 MM	6	06-07
DIE SET N. 7 - LENGTH 56 MM	7	07-08
DIE SET N. 8 - LENGTH 56 MM	8	08-10
DIE SET N. 9 - LENGTH 56 MM	9	09-10
DIE SET N. 10 - LENGTH 56 MM	10	10-12
DIE SET N. 12 - LENGTH 56 MM	12	12-15
DIE SET N. 14 - LENGTH 56 MM	14	14-15
DIE SET N. 15 - LENGTH 56 MM	***15***	***15-18***
DIE SET N. 17 - LENGTH 56 MM	17	17-18
DIE SET N. 18 - LENGTH 56 MM	***18***	***18-21***
DIE SET N. 20 - LENGTH 56 MM	20	20-21
DIE SET N. 21 - LENGTH 56 MM	***21***	***21-24***
DIE SET N. 24 - LENGTH 56 MM	***24***	***24-27***
DIE SET N. 27 - LENGTH 56 MM	***27***	***27-30***
DIE SET N. 30 - LENGTH 56 MM	***30***	***30-33***
DIE SET N. 33 - LENGTH 70 MM	***33***	***33-36***
DIE SET N. 36 - LENGTH 75 MM	***36***	***36-39***
DIE SET N. 39 - LENGTH 70 MM	***39***	***39-42***
DIE SET N. 42 - LENGTH 70 MM	***42***	***42-45***
DIE SET N. 45 - LENGTH 70 MM	***45***	***45-48***
DIE SET N. 48 - LENGTH 70 MM	***48***	***48-51***
DIE SET N. 51 - LENGTH 75 MM	***51***	***51-57***
KIT 4 DIES MHP137 (N.15 TO N.33)	-	-
KIT 5 DIES MHP137 (N.15 TO N.39)	-	-
KIT 6 DIES MHP137 (N.15 TO N.39)	-	-
KIT 7 DIES MHP137 (N.15 TO N.39)	-	-
KIT 9 DIES MHP137 (N.15 TO N.45)	-	-
KIT 9 DIES MHP137 (N.15 TO N.48)	-	-
KIT 10 DIES MHP137 (N.15 TO N.48)	-	-
KIT 13 DIES HCRIMP137 (N.15 TO N.51)	**-**	**-**

- REFERENCES IN **BOLD** ARE INCLUDED IN THE STANDARD DIE KIT (ALSO IN **BOLD**)

MRB 137 EVO R

PG.554

DESCRIPTION	N°	CRIMP RANGE
DIE SET N. 4 - LENGTH 56 MM	4	04-05
DIE SET N. 6 - LENGTH 56 MM	6	06-07
DIE SET N. 7 - LENGTH 56 MM	7	07-08
DIE SET N. 9 - LENGTH 56 MM	9	09-10
DIE SET N. 8 - LENGTH 56 MM	8	08-10
DIE SET N. 10 - LENGTH 56 MM	10	10-12
DIE SET N. 12 - LENGTH 56 MM	12	12-15
DIE SET N. 14 - LENGTH 56 MM	14	14-15
DIE SET N. 15 - LENGTH 56 MM	***15***	***15-18***
DIE SET N. 17 - LENGTH 56 MM	17	17-18
DIE SET N. 18 - LENGTH 56 MM	***18***	***18-21***
DIE SET N. 20 - LENGTH 56 MM	20	20-21
DIE SET N. 21 - LENGTH 56 MM	***21***	***21-24***
DIE SET N. 24 - LENGTH 56 MM	***24***	***24-27***
DIE SET N. 27 - LENGTH 56 MM	***27***	***27-30***
DIE SET N. 30 - LENGTH 56 MM	***30***	***30-33***
DIE SET N. 33 - LENGTH 70 MM	***33***	***33-36***
DIE SET N. 36 - LENGTH 75 MM	***36***	***36-39***
DIE SET N. 39 - LENGTH 70 MM	***39***	***39-42***
DIE SET N. 42 - LENGTH 70 MM	***42***	***42-45***
DIE SET N. 45 - LENGTH 70 MM	***45***	***45-48***
DIE SET N. 48 - LENGTH 70 MM	***48***	***48-51***
DIE SET N. 51 - LENGTH 75 MM	***51***	***51-57***
KIT 4 DIES MRB137EVOR (N.15 TO N.33)	-	-
KIT 5 DIES MRB137EVOR (N.15 TO N.39)	-	-
KIT 6 DIES MRB137EVOR (N.15 TO N.39)	-	-
KIT 7 DIES MRB137EVOR (N.15 TO N.39)	-	-
KIT 9 DIES MRB137EVOR (N.15 TO N.45)	-	-
KIT 9 DIES MRB137EVOR (N.15 TO N.48)		
KIT 10 DIES MRB137EVOR (N.15 TO N.48)	-	-
KIT 13 DIES MRB137EVOR (N.15 TO N.51)	***-***	***-***

- REFERENCES IN **BOLD** ARE INCLUDED IN THE STANDARD DIE KIT (ALSO IN **BOLD**)

MB 137 EVO

PG.555

DESCRIPTION	N°	CRIMP RANGE
DIE SET N. 4 - LENGTH 56 MM	4	04-05
DIE SET N. 6 - LENGTH 56 MM	6	06-07
DIE SET N. 7 - LENGTH 56 MM	7	07-08
DIE SET N. 9 - LENGTH 56 MM	9	09-10
DIE SET N. 8 - LENGTH 56 MM	8	08-10
DIE SET N. 10 - LENGTH 56 MM	10	10-12
DIE SET N. 12 - LENGTH 56 MM	12	12-15
DIE SET N. 14 - LENGTH 56 MM	14	14-15
DIE SET N. 15 - LENGTH 56 MM	***15***	***15-18***
DIE SET N. 17 - LENGTH 56 MM	17	17-18
DIE SET N. 18 - LENGTH 56 MM	***18***	***18-21***
DIE SET N. 20 - LENGTH 56 MM	20	20-21
DIE SET N. 21 - LENGTH 56 MM	***21***	***21-24***
DIE SET N. 24 - LENGTH 56 MM	***24***	***24-27***
DIE SET N. 27 - LENGTH 56 MM	***27***	***27-30***
DIE SET N. 30 - LENGTH 56 MM	***30***	***30-33***
DIE SET N. 33 - LENGTH 70 MM	***33***	***33-36***
DIE SET N. 36 - LENGTH 75 MM	***36***	***36-39***
DIE SET N. 39 - LENGTH 70 MM	***39***	***39-42***
DIE SET N. 42 - LENGTH 70 MM	***42***	***42-45***
DIE SET N. 45 - LENGTH 70 MM	***45***	***45-48***
DIE SET N. 48 - LENGTH 70 MM	***48***	***48-51***
DIE SET N. 51 - LENGTH 75 MM	***51***	***51-57***
KIT 4 DIES MB137EVO (N.15 TO N.33)	-	-
KIT 5 DIES MB137EVO (N.15 TO N.39)	-	-
KIT 6 DIES MB137EVO (N.15 TO N.39)	-	-
KIT 7 DIES MB137EVO (N.15 TO N.39)	-	-
KIT 9 DIES MB137EVO (N.15 TO N.45)	-	-
KIT 9 DIES MB137EVO (N.15 TO N.48)		
KIT 10 DIES MB137EVO (N.15 TO N.48)	-	-
KIT 13 DIES MB137EVO (N.15 TO N.51)	***-***	***-***

- REFERENCES IN **BOLD** ARE INCLUDED IN THE STANDARD DIE KIT (ALSO IN **BOLD**)

MB 240 EVO

PG.557

DESCRIPTION	N°	CRIMP RANGE
DIE SET N. 4 - LENGTH 56 MM	4	04-05
DIE SET N. 6 - LENGTH 56 MM	6	06-08
DIE SET N. 7 - LENGTH 56 MM	7	07-08
DIE SET N. 8 - LENGTH 56 MM	8	08-09
DIE SET N. 9 - LENGTH 56 MM	9	09-10
DIE SET N. 10 - LENGTH 56 MM	10	10-12
DIE SET N. 12 - LENGTH 56 MM	12	12-15
DIE SET N. 14 - LENGTH 56 MM	14	14-15
DIE SET N. 15 - LENGTH 56 MM	***15***	***15-18***
DIE SET N. 17 - LENGTH 56 MM	17	17-18
DIE SET N. 18 - LENGTH 56 MM	***18***	***18-21***
DIE SET N. 20 - LENGTH 56 MM	20	20-21
DIE SET N. 21 - LENGTH 56 MM	***21***	***21-24***
DIE SET N. 24 - LENGTH 70 MM	***24***	***24-27***
DIE SET N. 27 - LENGTH 90 MM	***27***	***27-30***
DIE SET N. 30 - LENGTH 90 MM	***30***	***30-33***
DIE SET N. 33 - LENGTH 90 MM	***33***	***33-36***
DIE SET N. 36 - LENGTH 90 MM	***36***	***36-39***
DIE SET N. 39 - LENGTH 90 MM	***39***	***39-42***
DIE SET N. 42 - LENGTH 90 MM	***42***	***42-45***
DIE SET N. 45 - LENGTH 100 MM	***45***	***45-48***
DIE SET N. 48 - LENGTH 100 MM	***48***	***48-51***
DIE SET N. 51 - LENGTH 100 MM	***51***	***51-57***
DIE SET N. 54 - LENGTH 110 MM	54	54-57
DIE SET N. 57 - LENGTH 100 MM	***57***	***57-62***
DIE SET N. 60 - LENGTH 100 MM	60	60-62
DIE SET N. 62 - LENGTH 110 MM	***62***	***62-66***
DIE SET N. 66 - LENGTH 100 MM	***66***	***66-70***
DIE SET N. 70 - LENGTH 100 MM	***70***	***70-72***
DIE SET N. 72 - LENGTH 100 MM	72	72-80
KIT 9 DIES MB240EVO (N.15 TO N.51)	-	-
KIT 11 DIES MB240EVO (N.15 TO N.66)	-	-
KIT 12 DIES MB240EVO (N.15 TO N.66)	-	-
KIT 17 DIES MB240EVO (N.15 TO N.70)	***-***	***-***

- REFERENCES IN **BOLD** ARE INCLUDED IN THE STANDARD DIE KIT (ALSO IN **BOLD**)

MB 350 EVO / MB 350 EVO L PG.559

DESCRIPTION	N°	CRIMP RANGE
DIE SET N. 4 - LENGTH 56 MM	4	04-05
DIE SET N. 6 - LENGTH 56 MM	6	06-08
DIE SET N. 7 - LENGTH 56 MM	7	07-08
DIE SET N. 8 - LENGTH 56 MM	8	08-09
DIE SET N. 9 - LENGTH 56 MM	9	09-10
DIE SET N. 10 - LENGTH 56 MM	10	10-12
DIE SET N. 12 - LENGTH 56 MM	12	12-15
DIE SET N. 14 - LENGTH 56 MM	14	14-15
DIE SET N. 15 - LENGTH 56 MM	***15***	***15-18***
DIE SET N. 17 - LENGTH 56 MM	17	17-18
DIE SET N. 18 - LENGTH 56 MM	***18***	***18-21***
DIE SET N. 20 - LENGTH 56 MM	20	20-21
DIE SET N. 21 - LENGTH 56 MM	***21***	***21-24***
DIE SET N. 24 - LENGTH 70 MM	***24***	***24-27***
DIE SET N. 27 - LENGTH 90 MM	***27***	***27-30***
DIE SET N. 30 - LENGTH 90 MM	***30***	***30-33***
DIE SET N. 33 - LENGTH 90 MM	***33***	***33-36***
DIE SET N. 36 - LENGTH 90 MM	***36***	***36-39***
DIE SET N. 39 - LENGTH 90 MM	***39***	***39-42***
DIE SET N. 42 - LENGTH 90 MM	***42***	***42-45***
DIE SET N. 45 - LENGTH 100 MM	***45***	***45-48***
DIE SET N. 48 - LENGTH 100 MM	***48***	***48-51***
DIE SET N. 51 - LENGTH 110 MM	***51***	***51-57***
DIE SET N. 54 - LENGTH 110 MM	54	54-57
DIE SET N. 57 - LENGTH 110 MM	***57***	***57-62***
DIE SET N. 60 - LENGTH 110 MM	60	60-62
DIE SET N. 62 - LENGTH 125 MM	***62***	***62-66***
DIE SET N. 66 - LENGTH 110 MM	66	66-70
DIE SET N. 66* - LENGTH 125 MM	***66****	***66-70***
DIE SET N. 70 - LENGTH 100 MM	70	70-72
DIE SET N. 70* - LENGTH 125 MM	***70 ****	***70-72***
DIE SET N. 72 - LENGTH 100 MM	72	72-73
DIE SET N. 73 - LENGTH 125 MM	***73***	***73-76***
DIE SET N. 75 - LENGTH 125 MM	75	75-76
DIE SET N. 76 - LENGTH 125 MM	***76***	***76-86***
DIE SET N. 80 - LENGTH 125 MM	80	80-86
DIE SET N. 86 - LENGTH 125 MM	86	86-90
DIE SET N. 90 - LENGTH 125 MM	90	90-95
DIE SET N. 95 - LENGTH 125 MM	95	95-105
DIE SET N. 99 - LENGTH 125 MM	99	99-109
DIE SET N. 112 - LENGTH 125 MM	112	112-117
DIE SET N. 117 - LENGTH 125 MM	117	117-122
DIE SET N. 122 - LENGTH 125 MM	122	122-127
KIT 13 DIES MB350EVO/L (N.15 TO N.73)	-	-
KIT 19 DIES MB350EVO/L (N.15 TO N.76)	***-***	***-***

- REFERENCES IN **BOLD** ARE INCLUDED IN THE STANDARD DIE KIT (ALSO IN **BOLD**)

GOLDENCRIMP 420 EVO

PG.561

DESCRIPTION	N°	CRIMP RANGE
DIE SET N. 4 - LENGTH 56 MM	4	04-05
DIE SET N. 6 - LENGTH 56 MM	6	06-08
DIE SET N. 7 - LENGTH 56 MM	7	07-08
DIE SET N. 8 - LENGTH 56 MM	8	08-09
DIE SET N. 10 - LENGTH 56 MM	10	10-12
DIE SET N. 12 - LENGTH 56 MM	12	12-15
DIE SET N. 15 - LENGTH 56 MM	***15***	***15-18***
DIE SET N. 17 - LENGTH 56 MM	17	17-18
DIE SET N. 18 - LENGTH 56 MM	***18***	***18-21***
DIE SET N. 20 - LENGTH 56 MM	20	20-21
DIE SET N. 21 - LENGTH 56 MM	***21***	***21-24***
DIE SET N. 24 - LENGTH 70 MM	***24***	***24-27***
DIE SET N. 27 - LENGTH 90 MM	***27***	***27-30***
DIE SET N. 30 - LENGTH 90 MM	***30***	***30-33***
DIE SET N. 33 - LENGTH 90 MM	***33***	***33-36***
DIE SET N. 36 - LENGTH 90 MM	***36***	***36-39***
DIE SET N. 39 - LENGTH 90 MM	***39***	***39-42***
DIE SET N. 42 - LENGTH 90 MM	***42***	***42-45***
DIE SET N. 45 - LENGTH 100 MM	***45***	***45-48***
DIE SET N. 48 - LENGTH 100 MM	***48***	***48-51***
DIE SET N. 51 - LENGTH 110 MM	***51***	***51-57***
DIE SET N. 54 - LENGTH 110 MM	54	54-57
DIE SET N. 57 - LENGTH 110 MM	***57***	***57-62***
DIE SET N. 60 - LENGTH 110 MM	60	60-62
DIE SET N. 62 - LENGTH 110 MM	62	60-62
DIE SET N. 62* - LENGTH 125 MM	***62****	***62-66***
DIE SET N. 66 - LENGTH 110 MM	66	66-70
DIE SET N. 66* - LENGTH 125 MM	***66****	***66-70***
DIE SET N. 70 - LENGTH 100 MM	70	70-72
DIE SET N. 70* - LENGTH 125 MM	***70****	***70-72***
DIE SET N. 73 - LENGTH 125 MM	***73***	***73-76***
DIE SET N. 75 - LENGTH 125 MM	75	75-76
DIE SET N. 76 - LENGTH 125 MM	76	76-86
DIE SET N. 76* - LENGTH 135 MM	***76****	***76-86***
DIE SET N. 80 - LENGTH 125 MM	80	80-82
DIE SET N. 82 - LENGTH 135 MM	82	82-90
DIE SET N. 86 - LENGTH 125 MM	86	86-90
DIE SET N. 86* - LENGTH 150 MM (FOR DIAMONDSPIR 2½")	86*	86-90
DIE SET N. 90 - LENGTH 125 MM	90	90-95
DIE SET N. 95 - LENGTH 125 MM	95	95-105
DIE SET N. 95* - LENGTH 150 MM (FOR DIAMONDSPIR 2½")	95*	95-105
KIT 13 DIE SET GOLDENCRIMP420EVO (15 TO 73)	-	-
KIT 19 DIE SET GOLDENCRIMP420EVO (15 TO 76)	***-***	***-***

- REFERENCES IN **BOLD** ARE INCLUDED IN THE STANDARD DIE KIT (ALSO IN **BOLD**)

GOLDENCRIMP 450

PG.563

DESCRIPTION	N°	CRIMP RANGE
DIE SET N. 4 - LENGTH 56 MM	4	04-05
DIE SET N. 6 - LENGTH 56 MM	6	06-08
DIE SET N. 7 - LENGTH 56 MM	7	07-08
DIE SET N. 8 - LENGTH 56 MM	8	08-09
DIE SET N. 10 - LENGTH 56 MM	10	10-12
DIE SET N. 12 - LENGTH 56 MM	12	12-15
DIE SET N. 15 - LENGTH 56 MM	***15***	***15-18***
DIE SET N. 17 - LENGTH 56 MM	17	17-18
DIE SET N. 18 - LENGTH 56 MM	***18***	***18-21***
DIE SET N. 20 - LENGTH 56 MM	20	20-21
DIE SET N. 21 - LENGTH 56 MM	***21***	***21-24***
DIE SET N. 24 - LENGTH 70 MM	***24***	***24-27***
DIE SET N. 27 - LENGTH 90 MM	***27***	***27-30***
DIE SET N. 30 - LENGTH 90 MM	***30***	***30-33***
DIE SET N. 33 - LENGTH 90 MM	***33***	***33-36***
DIE SET N. 36 - LENGTH 90 MM	***36***	***36-39***
DIE SET N. 39 - LENGTH 90 MM	***39***	***39-42***
DIE SET N. 42 - LENGTH 90 MM	***42***	***42-45***
DIE SET N. 45 - LENGTH 100 MM	***45***	***45-48***
DIE SET N. 48 - LENGTH 100 MM	***48***	***48-51***
DIE SET N. 51 - LENGTH 110 MM	***51***	***51-57***
DIE SET N. 54 - LENGTH 110 MM	***54***	***54-57***
DIE SET N. 57 - LENGTH 110 MM	***57***	***57-62***
DIE SET N. 60 - LENGTH 110 MM	60	60-62
DIE SET N. 62 - LENGTH 110 MM	62	62-66
DIE SET N. 62* - LENGTH 125 MM	***62****	***62-66***
DIE SET N. 66 - LENGTH 110 MM	66	66-70
DIE SET N. 66* - LENGTH 125 MM	***66****	***66-70***
DIE SET N. 70 - LENGTH 100 MM	70	70-72
DIE SET N. 70* - LENGTH 125 MM	***70****	***70-72***
DIE SET N. 73 - LENGTH 125-28 MM, REINFORCED PIN	***73***	***73-76***
DIE SET N. 76 - LENGTH 125 MM	76	76-86
DIE SET N. 76* - LENGTH 135 MM	***76****	***76-86***
DIE SET N. 80 - LENGTH 125 MM	80	80-82
DIE SET N. 82 - LENGTH 135 MM	82	82-90
DIE SET N. 86* - LENGTH 150 MM (FOR DIAMONDSPIR 2½")	86*	86-90
DIE SET N. 90 - LENGTH 125 MM	90	90-95
DIE SET N. 95 - LENGTH 150 MM (FOR DIAMONDSPIR 2½")	95*	95-105
DIE SET N. 99 - LENGTH 125 MM	99	95-105
DIE SET N. 105 - LENGTH 150 MM	105	99-109
DIE SET N. 112 - LENGTH 150 MM	112	112-122
DIE SET N. 117 - LENGTH 110 MM	117	117-127
DIE SET N. 122 - LENGTH 130 MM, REINFORCED PIN	122	122-130
KIT 13 DIE SET GOLDENCRIMP450EVO (15 TO 73)	-	-
KIT 19 DIE SET GOLDENCRIMP450EVO (15 TO 76)	***-***	***-***

- REFERENCES IN **BOLD** ARE INCLUDED IN THE STANDARD DIE KIT (ALSO IN **BOLD**)

MVB 137 EVO R

PG.564

DESCRIPTION	N°	CRIMP RANGE
DIE SET N. 4 - LENGTH 56 MM	4	04-05
DIE SET N. 6 - LENGTH 56 MM	6	06-08
DIE SET N. 7 - LENGTH 56 MM	7	07-08
DIE SET N. 8 - LENGTH 56 MM	8	08-10
DIE SET N. 9 - LENGTH 56 MM	9	09-10
DIE SET N. 10 - LENGTH 56 MM	10	10-12
DIE SET N. 12 - LENGTH 56 MM	12	12-15
DIE SET N. 14 - LENGTH 56 MM	14	14-15
DIE SET N. 15 - LENGTH 56 MM	***15***	***15-18***
DIE SET N. 17 - LENGTH 56 MM	17	17-18
DIE SET N. 18 - LENGTH 56 MM	***18***	***18-21***
DIE SET N. 20 - LENGTH 56 MM	20	20-21
DIE SET N. 21 - LENGTH 56 MM	***21***	***21-24***
DIE SET N. 24 - LENGTH 56 MM	***24***	***24-27***
DIE SET N. 27 - LENGTH 56 MM	***27***	***27-30***
DIE SET N. 30 - LENGTH 56 MM	***30***	***30-33***
DIE SET N. 33 - LENGTH 70 MM	***33***	***33-36***
DIE SET N. 36 - LENGTH 75 MM	***36***	***36-39***
DIE SET N. 39 - LENGTH 70 MM	***39***	***39-42***
DIE SET N. 42 - LENGTH 70 MM	***42***	***42-45***
DIE SET N. 45 - LENGTH 70 MM	***45***	***45-48***
DIE SET N. 48 - LENGTH 70 MM	***48***	***48-51***
DIE SET N. 51 - LENGTH 75 MM	***51***	***51-57***
KIT 4 DIES MVB137EVOR (N.15 TO N.33)	-	-
KIT 5 DIES MVB137EVOR (N.15 TO N.39)	-	-
KIT 6 DIES MVB137EVOR (N.15 TO N.39)	-	-
KIT 7 DIES MVB137EVOR (N.15 TO N.39)	-	-
KIT 9 DIES MVB137EVOR (N.15 TO N.45)	-	-
KIT 9 DIES MVB137EVOR (N.15 TO N.48)	-	-
KIT 10 DIES MVB137EVOR (N.15 TO N.48)	-	-
KIT 13 DIES MVB137EVOR (N.15 TO N.51)	***-***	***-***

- REFERENCES IN **BOLD** ARE INCLUDED IN THE STANDARD DIE KIT (ALSO IN **BOLD**)

MV 137 L

DESCRIPTION	N°	CRIMP RANGE
DIE SET N. 4 - LENGTH 56 MM	4	04-05
DIE SET N. 6 - LENGTH 56 MM	6	06-08
DIE SET N. 8 - LENGTH 56 MM	8	08-10
DIE SET N. 10 - LENGTH 56 MM	10	10-12
DIE SET N. 12 - LENGTH 56 MM	12	12-15
DIE SET N. 15 - LENGTH 56 MM	***15***	***15-18***
DIE SET N. 17 - LENGTH 56 MM	17	17-18
DIE SET N. 18 - LENGTH 56 MM	18	18-21
DIE SET N. 20 - LENGTH 56 MM	20	20-21
DIE SET N. 21 - LENGTH 56 MM	***21***	***21-24***
DIE SET N. 24 - LENGTH 56 MM	***24***	***24-27***
DIE SET N. 27 - LENGTH 56 MM	***27***	***27-30***
DIE SET N. 30 - LENGTH 56 MM	***30***	***30-33***
DIE SET N. 33 - LENGTH 70 MM	***33***	***33-36***
DIE SET N. 36 - LENGTH 75 MM	***36***	***36-39***
DIE SET N. 39 - LENGTH 70 MM	***39***	***39-42***
DIE SET N. 42 - LENGTH 70 MM	***42***	***42-45***
DIE SET N. 45 - LENGTH 70 MM	***45***	***45-48***
DIE SET N. 48 - LENGTH 70 MM	***48***	***48-51***
DIE SET N. 51 - LENGTH 75 MM	***51***	***51-57***
KIT 4 DIES MV137L (N.15 TO N.33)	-	-
KIT 5 DIES MV137L (N.15 TO N.39)	-	-
KIT 6 DIES MV137L (N.15 TO N.39)	-	-
KIT 7 DIES MV137L (N.15 TO N.39)	-	-
KIT 9 DIES MV137L (N.15 TO N.45)	-	-
KIT 9 DIES MV137L (N.15 TO N.48)	-	-
KIT 10 DIES MV137L (N.15 TO N.48)	-	-
KIT 13 DIES MV137L (N.15 TO N.51)	**-**	**-**

- REFERENCES IN **BOLD** ARE INCLUDED IN THE STANDARD DIE KIT (ALSO IN **BOLD**)

MV 240

PG.566

DESCRIPTION	N°	CRIMP RANGE
DIE SET N. 4 - LENGTH 56 MM	4	04-05
DIE SET N. 6 - LENGTH 56 MM	6	06-08
DIE SET N. 7 - LENGTH 56 MM	7	07-08
DIE SET N. 8 - LENGTH 56 MM	8	08-09
DIE SET N. 9 - LENGTH 56 MM	9	09-10
DIE SET N. 10 - LENGTH 56 MM	10	10-12
DIE SET N. 12 - LENGTH 56 MM	12	12-15
DIE SET N. 14 - LENGTH 56 MM	14	14-15
DIE SET N. 15 - LENGTH 56 MM	***15***	***15-18***
DIE SET N. 17 - LENGTH 56 MM	17	17-18
DIE SET N. 18 - LENGTH 56 MM	***18***	***18-21***
DIE SET N. 20 - LENGTH 56 MM	20	17-18
DIE SET N. 21 - LENGTH 56 MM	***21***	***21-24***
DIE SET N. 24 - LENGTH 70 MM	***24***	***24-27***
DIE SET N. 27 - LENGTH 90 MM	***27***	***27-30***
DIE SET N. 30 - LENGTH 90 MM	***30***	***30-33***
DIE SET N. 33 - LENGTH 90 MM	***33***	***33-36***
DIE SET N. 36 - LENGTH 90 MM	***36***	***36-39***
DIE SET N. 39 - LENGTH 90 MM	***39***	***39-42***
DIE SET N. 42 - LENGTH 90 MM	***42***	***42-45***
DIE SET N. 45 - LENGTH 100 MM	***45***	***45-48***
DIE SET N. 48 - LENGTH 100 MM	***48***	***48-51***
DIE SET N. 51 - LENGTH 100 MM	***51***	***51-57***
DIE SET N. 54 - LENGTH 100 MM	54	54-57
DIE SET N. 57 - LENGTH 100 MM	***57***	***57-62***
DIE SET N. 60 - LENGTH 100 MM	60	60-62
DIE SET N. 62 - LENGTH 100 MM	***62***	***62-66***
DIE SET N. 66 - LENGTH 100 MM	***66***	***66-70***
DIE SET N. 70 - LENGTH 100 MM	***70***	***70-72***
DIE SET N. 72 - LENGTH 100 MM	72	72-80
KIT 9 DIES MV240 (N.15 TO N.51)	-	-
KIT 11 DIES MV240 (N.15 TO N.66)	-	-
KIT 12 DIES MV240 (N.15 TO N.66)	-	-
KIT 17 DIES MV240 (N.15 TO N.70)	***-***	***-***

- REFERENCES IN **BOLD** ARE INCLUDED IN THE STANDARD DIE KIT (ALSO IN **BOLD**)

MV 240 L

PG.567

DESCRIPTION	N°	CRIMP RANGE
DIE SET N. 4 - LENGTH 56 MM	4	04-05
DIE SET N. 6 - LENGTH 56 MM	6	06-08
DIE SET N. 7 - LENGTH 56 MM	7	07-08
DIE SET N. 8 - LENGTH 56 MM	8	08-09
DIE SET N. 9 - LENGTH 56 MM	9	09-10
DIE SET N. 10 - LENGTH 56 MM	10	10-12
DIE SET N. 12 - LENGTH 56 MM	12	12-15
DIE SET N. 15 - LENGTH 56 MM	***15***	***15-18***
DIE SET N. 18 - LENGTH 56 MM	***18***	***18-21***
DIE SET N. 21 - LENGTH 56 MM	***21***	***21-24***
DIE SET N. 24 - LENGTH 70 MM	***24***	***24-27***
DIE SET N. 27 - LENGTH 90 MM	***27***	***27-30***
DIE SET N. 30 - LENGTH 90 MM	***30***	***30-33***
DIE SET N. 33 - LENGTH 90 MM	***33***	***33-36***
DIE SET N. 36 - LENGTH 90 MM	***36***	***36-39***
DIE SET N. 39 - LENGTH 90 MM	***39***	***39-42***
DIE SET N. 42 - LENGTH 90 MM	***42***	***42-45***
DIE SET N. 45 - LENGTH 100 MM	***45***	***45-48***
DIE SET N. 48 - LENGTH 100 MM	***48***	***48-51***
DIE SET N. 51 - LENGTH 100 MM	***51***	***51-57***
DIE SET N. 54 - LENGTH 100 MM	***54***	***54-57***
DIE SET N. 57 - LENGTH 100 MM	***57***	***57-62***
DIE SET N. 62 - LENGTH 100 MM	***62***	***62-66***
DIE SET N. 66 - LENGTH 100 MM	***66***	***66-70***
DIE SET N. 70 - LENGTH 100 MM	***70***	***70-72***
KIT 9 DIES MV240L (N.15 TO N.51)	-	-
KIT 11 DIES MV240L (N.15 TO N.66)	-	-
KIT 12 DIES MV240L (N.15 TO N.66)	-	-
KIT 17 DIES MV240L (N.15 TO N.70)	***-***	***-***

- REFERENCES IN **BOLD** ARE INCLUDED IN THE STANDARD DIE KIT (ALSO IN **BOLD**)

MV 350

PG.568

DESCRIPTION	N°	CRIMP RANGE
DIE SET N. 4 - LENGTH 56 MM	4	04-05
DIE SET N. 6 - LENGTH 56 MM	6	06-08
DIE SET N. 7 - LENGTH 56 MM	7	07-08
DIE SET N. 8 - LENGTH 56 MM	8	08-09
DIE SET N. 9 - LENGTH 56 MM	9	09-10
DIE SET N. 10 - LENGTH 56 MM	10	10-12
DIE SET N. 12 - LENGTH 56 MM	12	12-15
DIE SET N. 14 - LENGTH 56 MM	14	14-15
DIE SET N. 15 - LENGTH 56 MM	***15***	***15-18***
DIE SET N. 17 - LENGTH 56 MM	17	17-18
DIE SET N. 18 - LENGTH 56 MM	***18***	***18-21***
DIE SET N. 20 - LENGTH 56 MM	20	17-18
DIE SET N. 21 - LENGTH 56 MM	***21***	***21-24***
DIE SET N. 24 - LENGTH 70 MM	24	24-27
DIE SET N. 27 - LENGTH 90 MM	***27***	***27-30***
DIE SET N. 30 - LENGTH 90 MM	30	30-33
DIE SET N. 33 - LENGTH 90 MM	***33***	***33-36***
DIE SET N. 36 - LENGTH 90 MM	***36***	***36-39***
DIE SET N. 39 - LENGTH 90 MM	***39***	***39-42***
DIE SET N. 42 - LENGTH 90 MM	***42***	***42-45***
DIE SET N. 45 - LENGTH 100 MM	***45***	***45-48***
DIE SET N. 48 - LENGTH 100 MM	***48***	***48-51***
DIE SET N. 51 - LENGTH 100 MM	***51***	***51-57***
DIE SET N. 54 - LENGTH 110 MM	54	54-57
DIE SET N. 57 - LENGTH 100 MM	***57***	***57-62***
DIE SET N. 54 - LENGTH 110 MM	54	54-57
DIE SET N. 62 - LENGTH 100 MM	***62***	***62-66***
DIE SET N. 66 - LENGTH 110 MM	***66***	***66-70***
DIE SET N. 70 - LENGTH 100 MM	***70***	***70-72***
DIE SET N. 73 - LENGTH 125 MM	73	73-76
DIE SET N. 75 - LENGTH 125 MM	75	75-76
DIE SET N. 76 - LENGTH 125 MM	76	76-86
DIE SET N. 80 - LENGTH 125 MM	80	80-86
DIE SET N. 86 - LENGTH 125 MM	86	86-90
DIE SET N. 90 - LENGTH 125 MM	90	90-95
DIE SET N. 95 - LENGTH 125 MM	95	95-105
DIE SET N. 99 - LENGTH 125 MM	99	99-109
DIE SET N. 112 - LENGTH 125 MM	112	112-117
DIE SET N. 117 - LENGTH 125 MM	117	117-122
DIE SET N. 122 - LENGTH 125 MM	122	122-127
KIT 12 DIES MV350 (N.15 TO N.66)	-	-
KIT 17 DIES MV350 (N.15 TO N.70)	**-**	**-**

- REFERENCES IN **BOLD** ARE INCLUDED IN THE STANDARD DIE KIT (ALSO IN **BOLD**)

MV 350 L

PG.568

DESCRIPTION	N°	CRIMP RANGE
DIE SET N. 4 - LENGTH 56 MM	4	04-05
DIE SET N. 6 - LENGTH 56 MM	6	06-08
DIE SET N. 7 - LENGTH 56 MM	7	07-08
DIE SET N. 8 - LENGTH 56 MM	8	08-09
DIE SET N. 9 - LENGTH 56 MM	9	09-10
DIE SET N. 10 - LENGTH 56 MM	10	10-12
DIE SET N. 12 - LENGTH 56 MM	12	12-15
DIE SET N. 14 - LENGTH 56 MM	14	14-15
DIE SET N. 15 - LENGTH 56 MM	***15***	***15-18***
DIE SET N. 17 - LENGTH 56 MM	17	17-18
DIE SET N. 18 - LENGTH 56 MM	***18***	***18-21***
DIE SET N. 20 - LENGTH 56 MM	20	17-18
DIE SET N. 21 - LENGTH 56 MM	***21***	***21-24***
DIE SET N. 24 - LENGTH 70 MM	24	24-27
DIE SET N. 27 - LENGTH 90 MM	***27***	***27-30***
DIE SET N. 30 - LENGTH 90 MM	30	30-33
DIE SET N. 33 - LENGTH 90 MM	***33***	***33-36***
DIE SET N. 36 - LENGTH 90 MM	***36***	***36-39***
DIE SET N. 39 - LENGTH 90 MM	***39***	***39-42***
DIE SET N. 42 - LENGTH 90 MM	***42***	***42-45***
DIE SET N. 45 - LENGTH 100 MM	***45***	***45-48***
DIE SET N. 48 - LENGTH 100 MM	***48***	***48-51***
DIE SET N. 51 - LENGTH 100 MM	***51***	***51-57***
DIE SET N. 54 - LENGTH 110 MM	54	54-57
DIE SET N. 57 - LENGTH 100 MM	***57***	***57-62***
DIE SET N. 54 - LENGTH 110 MM	54	54-57
DIE SET N. 62 - LENGTH 100 MM	***62***	***62-66***
DIE SET N. 66 - LENGTH 110 MM	***66***	***66-70***
DIE SET N. 70 - LENGTH 100 MM	***70***	***70-72***
DIE SET N. 73 - LENGTH 125 MM	73	73-76
DIE SET N. 75 - LENGTH 125 MM	75	75-76
DIE SET N. 76 - LENGTH 125 MM	76	76-86
DIE SET N. 80 - LENGTH 125 MM	80	80-86
DIE SET N. 86 - LENGTH 125 MM	86	86-90
DIE SET N. 90 - LENGTH 125 MM	90	90-95
DIE SET N. 95 - LENGTH 125 MM	95	95-105
DIE SET N. 99 - LENGTH 125 MM	99	99-109
DIE SET N. 112 - LENGTH 125 MM	112	112-117
DIE SET N. 117 - LENGTH 125 MM	117	117-122
DIE SET N. 122 - LENGTH 125 MM	122	122-127
KIT 12 DIES MV350L (N.15 TO N.66)	-	-
KIT 17 DIES MV350L (N.15 TO N.70)	***-***	***-***

- REFERENCES IN **BOLD** ARE INCLUDED IN THE STANDARD DIE KIT (ALSO IN **BOLD**)

MS 140

PG.570

DESCRIPTION	N°	CRIMP RANGE
DIE SET N. 4 - LENGTH 56 MM	4	04-05
DIE SET N. 6 - LENGTH 56 MM	6	06-08
DIE SET N. 7 - LENGTH 56 MM	7	07-08
DIE SET N. 8 - LENGTH 56 MM	8	08-09
DIE SET N. 9 - LENGTH 56 MM	9	09-10
DIE SET N. 10 - LENGTH 56 MM	10	10-12
DIE SET N. 12 - LENGTH 70 MM	12	12-15
DIE SET N. 14 - LENGTH 70 MM	14	14-15
DIE SET N. 15 - LENGTH 70 MM	***15***	***15-18***
DIE SET N. 17 - LENGTH 70 MM	17	17-18
DIE SET N. 18 - LENGTH 70 MM	***18***	***18-21***
DIE SET N. 20 - LENGTH 70 MM	20	20-21
DIE SET N. 21 - LENGTH 70 MM	***21***	***21-24***
DIE SET N. 24 - LENGTH 70 MM	***24***	***24-27***
DIE SET N. 27 - LENGTH 70 MM	***27***	***27-30***
DIE SET N. 30 - LENGTH 70 MM	***30***	***30-33***
DIE SET N. 33 - LENGTH 70 MM	***33***	***33-36***
DIE SET N. 36 - LENGTH 75 MM	***36***	***36-39***
DIE SET N. 39 - LENGTH 70 MM	***39***	***39-42***
DIE SET N. 42 - LENGTH 70-28 MM	***42***	***42-45***
DIE SET N. 45 - LENGTH 70 MM	***45***	***45-48***
DIE SET N. 48 - LENGTH 70 MM	***48***	***48-51***
DIE SET N. 51 - LENGTH 75 MM	51	51-57
KIT 10 DIES MS140 (N.15 TO N.48)	-	-
KIT 12 DIES MS140 (N.15 TO N.48)	***-***	***-***

- REFERENCES IN **BOLD** ARE INCLUDED IN THE STANDARD DIE KIT (ALSO IN **BOLD**)

MS 320

DESCRIPTION	N°	CRIMP RANGE
DIE SET N. 4 - LENGTH 56 MM	4	04-05
DIE SET N. 6 - LENGTH 56 MM	6	06-08
DIE SET N. 7 - LENGTH 56 MM	7	07-08
DIE SET N. 8 - LENGTH 56 MM	8	08-09
DIE SET N. 10 - LENGTH 90 MM	10	10-12
DIE SET N. 12 - LENGTH 90 MM	12	12-15
DIE SET N. 14 - LENGTH 90 MM	14	14-15
DIE SET N. 15 - LENGTH 70 MM	***15***	***15-18***
DIE SET N. 17 - LENGTH 90 MM	17	17-18
DIE SET N. 18 - LENGTH 70 MM	***18***	***18-21***
DIE SET N. 20 - LENGTH 90 MM	20	20-21
DIE SET N. 21 - LENGTH 90 MM	***21***	***21-24***
DIE SET N. 24 - LENGTH 90 MM	***24***	***24-27***
DIE SET N. 27 - LENGTH 90 MM	***27***	***27-30***
DIE SET N. 30 - LENGTH 90 MM	***30***	***30-33***
DIE SET N. 33 - LENGTH 90 MM	***33***	***33-36***
DIE SET N. 36 - LENGTH 90 MM	***36***	***36-39***
DIE SET N. 39 - LENGTH 90 MM	***39***	***39-42***
DIE SET N. 42 - LENGTH 90 MM	***42***	***42-45***
DIE SET N. 45 - LENGTH 95 MM	***45***	***45-48***
DIE SET N. 48 - LENGTH 100 MM	***48***	***48-51***
DIE SET N. 51 - LENGTH 100 MM	***51***	***51-57***
DIE SET N. 54 - LENGTH 100 MM	54	54-57
DIE SET N. 57 - LENGTH 100 MM	***57***	***57-62***
DIE SET N. 60 - LENGTH 100 MM	60	60-62
DIE SET N. 62 - LENGTH 110 MM	62	62-66
DIE SET N. 62 - LENGTH 125 MM	***62***	***62-66***
DIE SET N. 66 - LENGTH 100 MM	66	66-70
DIE SET N. 66 - LENGTH 125 MM	***66***	***66-70***
DIE SET N. 70 - LENGTH 100 MM	70	70-72
DIE SET N. 70 - LENGTH 125 MM	***70***	***70-72***
DIE SET N. 73 - LENGTH 120 MM	***73***	***73-76***
DIE SET N. 76 - LENGTH 120 MM	***76***	***76-86***
DIE SET N. 80 - LENGTH 100 MM	80	80-86
DIE SET N. 86 - LENGTH 100-65 MM	86	86-90
DIE SET N. 90 - LENGTH 100 MM, REINFORCED PIN	90	90-95
DIE SET N. 95 - LENGTH 100 MM, REINFORCED PIN	95	95-105
DIE SET N. 99 - LENGTH 100 MM	99	99-109
DIE SET N. 112 - LENGTH 100 MM	112	112-117
DIE SET N. 117 - LENGTH 100 MM	117	117-122
DIE SET N. 122 - LENGTH 100 MM	122	122-127
KIT 13 DIES MS320 (N.15 TO N.73)	-	-
KIT 19 DIES MS320 (N.15 TO N.76)	***-***	***-***

- REFERENCES IN **BOLD** ARE INCLUDED IN THE STANDARD DIE KIT (ALSO IN **BOLD**)

MS 480

PG.573

DESCRIPTION	N°	CRIMP RANGE
DIE SET N. 4 - LENGTH 56 MM	4	04-05
DIE SET N. 6 - LENGTH 56 MM	6	06-08
DIE SET N. 7 - LENGTH 56 MM	7	07-08
DIE SET N. 8 - LENGTH 56 MM	8	08-09
DIE SET N. 10 - LENGTH 90 MM	10	10-12
DIE SET N. 12 - LENGTH 90 MM	12	12-15
DIE SET N. 14- LENGTH 90 MM	14	14-15
DIE SET N. 15 - LENGTH 90 MM	***15***	***15-18***
DIE SET N. 17 - LENGTH 90 MM	17	17-18
DIE SET N. 18 - LENGTH 90 MM	***18***	***18-21***
DIE SET N. 20 - LENGTH 90 MM	20	20-21
DIE SET N. 21 - LENGTH 90 MM	***21***	***21-24***
DIE SET N. 24 - LENGTH 90 MM	***24***	***24-27***
DIE SET N. 27 - LENGTH 90 MM	***27***	***27-30***
DIE SET N. 30 - LENGTH 100 MM	***30***	***30-33***
DIE SET N. 33 - LENGTH 90 MM	***33***	***33-36***
DIE SET N. 36 - LENGTH 90 MM	***36***	***36-39***
DIE SET N. 39 - LENGTH 90 MM	***39***	***39-42***
DIE SET N. 42 - LENGTH 90 MM	***42***	***42-45***
DIE SET N. 45 - LENGTH 100 MM	***45***	***45-48***
DIE SET N. 48 - LENGTH 100 MM	***48***	***48-51***
DIE SET N. 51 - LENGTH 110 MM	***51***	***51-57***
DIE SET N. 54 - LENGTH 110 MM	54	54-57
DIE SET N. 57 - LENGTH 110 MM	57	57-62
DIE SET N. 60 - LENGTH 110 MM	60	60-62
DIE SET N. 62 - LENGTH 110 MM	62	62-66
DIE SET N. 62* - LENGTH 125 MM	***62****	***62-66***
DIE SET N. 66 - LENGTH 110 MM	66	66-70
DIE SET N. 66* - LENGTH 125 MM	***66****	***66-70***
DIE SET N. 70 - LENGTH 110 MM	70	70-72
DIE SET N. 70* - LENGTH 125 MM	***70****	***70-72***
DIE SET N. 73 - LENGTH 125-28 MM, REINFORCED PIN	***73***	***73-76***
DIE SET N. 76 - LENGTH 135 MM	***76***	***76-86***
DIE SET N. 80 - LENGTH 125 MM	80	80-86
DIE SET N. 82 - LENGTH 135 MM	82	82-90
DIE SET N. 86 - LENGTH 150 MM	86	86-90
DIE SET N. 86 - LENGTH 125-48 MM	86	
DIE SET N. 90 - LENGTH 125 MM	90	90-95
DIE SET N. 95 - LENGTH 150 MM	95	95-105
DIE SET N. 95- LENGTH 125-48 MM	95	
DIE SET N. 99 - LENGTH 125 MM, REINFORCED PIN	99	99-105
DIE SET N. 105 - LENGTH 150 MM	105	105-112
DIE SET N. 112 - LENGTH 150 MM	112	112-122
DIE SET N. 117 - LENGTH 125 MM	117	117-122
DIE SET N. 122 - LENGTH 130 MM, REINFORCED PIN	122	122 -130
DIE SET N. 130 - LENGTH 145 MM	130	130-140
KIT 13 DIES MS480 (N.15 TO N.73)	-	-
KIT 19 DIES MS480 (N.15 TO N.76)	***-***	***-***

- REFERENCES IN **BOLD** ARE INCLUDED IN THE STANDARD DIE KIT (ALSO IN **BOLD**)

MS 800

PG.575

DESCRIPTION	N°	CRIMP RANGE
DIE SET N. 4 - LENGTH 56 MM	4	04-05
DIE SET N. 6 - LENGTH 56 MM	6	06-08
DIE SET N. 7 - LENGTH 56 MM	7	07-08
DIE SET N. 8 - LENGTH 56 MM	8	08-09
DIE SET N. 10 - LENGTH 56 MM	10	10-12
DIE SET N. 12 - LENGTH 90 MM	12	12-15
DIE SET N. 15 - LENGTH 90 MM	15	15-18
DIE SET N. 17 - LENGTH 90 MM	17	17-18
DIE SET N. 18 - LENGTH 90 MM	18	18-21
DIE SET N. 20 - LENGTH 90 MM	20	20-21
DIE SET N. 21 - LENGTH 90 MM	21	21-24
DIE SET N. 24 - LENGTH 90 MM	24	24-27
DIE SET N. 27 - LENGTH 90 MM	27	27-30
DIE SET N. 30 - LENGTH 90 MM	30	30-33
DIE SET N. 33 - LENGTH 90 MM	33	33-36
DIE SET N. 36 - LENGTH 90 MM	36	36-39
DIE SET N. 39 - LENGTH 90 MM	***39***	***39-42***
DIE SET N. 42 - LENGTH 90 MM	***42***	***42-45***
DIE SET N. 45 - LENGTH 100 MM	***45***	***45-48***
DIE SET N. 48 - LENGTH 100 MM	***48***	***48-51***
DIE SET N. 51 - LENGTH 110 MM	***51***	***51-57***
DIE SET N. 54 - LENGTH 110 MM	54	54-57
DIE SET N. 57 - LENGTH 110 MM	***57***	***57-62***
DIE SET N. 60 - LENGTH 110 MM	60	60-62
DIE SET N. 62 - LENGTH 110 MM	62	62-66
DIE SET N. 62* - LENGTH 125 MM	***62****	***62-66***
DIE SET N. 66 - LENGTH 110 MM	66	66-70
DIE SET N. 66* - LENGTH 125 MM	***66****	***66-70***
DIE SET N. 70 - LENGTH 110 MM	70	70-72
DIE SET N. 70* - LENGTH 125 MM	70*	70-72
DIE SET N. 73 - LENGTH 125-28 MM, REINFORCED PIN	73	73-76
DIE SET N. 76 - LENGTH 125 MM	76	76-86
DIE SET N. 76* - LENGTH 135 MM	***76****	***76-86***
DIE SET N. 80 - LENGTH 125 MM	80	80-86
DIE SET N. 82 - LENGTH 135 MM	82	82-90
DIE SET N. 86 - LENGTH 150 MM	***86***	***86-90***
DIE SET N. 90 - LENGTH 125 MM	***90***	***90-95***
DIE SET N. 95 - LENGTH 150 MM	***95***	***95-105***
DIE SET N. 105 - LENGTH 180 MM	***105***	***105-112***
DIE SET N. 112 - LENGTH 150 MM	***112***	***112-122***
DIE SET N. 130 - LENGTH 180 MM	***130***	***130-140***
KIT 13 DIES MS800 (N.15 TO N.73)	-	-
KIT 18 DIES MS800 (N.39 TO N.130)	***-***	***-***

- REFERENCES IN **BOLD** ARE INCLUDED IN THE STANDARD DIE KIT (ALSO IN **BOLD**)

MS 320 OPEN HEAD

PG.577

DESCRIPTION	N°	CRIMP RANGE
DIE SET N. 73 - LENGTH 125 MM	73	73-80
DIE SET N. 80 - LENGTH 125 MM	80	80-86
DIE SET N. 84 - LENGTH 125 MM	84	86-90
DIE SET N. 86 - LENGTH 125 MM	86	86-90
DIE SET N. 90 - LENGTH 125 MM	90	90-95
DIE SET N. 95 - LENGTH 125 MM	95	95-105
DIE SET N. 99 - LENGTH 125 MM	99	99-106
DIE SET N. 106 - LENGTH 125 MM	106	106-112
DIE SET N. 112 - LENGTH 125 MM	112	112-117
DIE SET N. 117 - LENGTH 125 MM	117	117-122
DIE SET N. 122 - LENGTH 125 MM	122	122-125
DIE SET N.125 - LENGTH 125 MM	125	125-128
DIE SET N. 128 - LENGTH 125 MM	128	128-130
DIE SET N. 130 - LENGTH 125 MM	130	130-140
DIE SET N. 135 - LENGTH 125 MM	135	135-145
DIE SET N. 150 - LENGTH 125 MM	150	150-160
DIE SET N. 156 - LENGTH 125 MM	156	156-166
DIE SET N. 158 - LENGTH 125 MM	158	158-168
DIE SET N. 165 - LENGTH 125 MM	165	165-185
DIE SET N. 175 - LENGTH 125 MM	175	175-195
DIE SET N. 181 - LENGTH 125 MM	181	181-201
DIE SET N. 185 - LENGTH 125 MM	185	185-205
DIE SET N. 188 - LENGTH 125 MM	188	188-208
DIE SET N. 190 - LENGTH 125 MM	190	190-210

- OTHER DIMENSIONS UPON REQUEST

MS 450-200

PG.578

DESCRIPTION	N°	CRIMP RANGE
DIE SET N. 4 - LENGTH 56 MM	4	04-05
DIE SET N. 6 - LENGTH 56 MM	6	06-08
DIE SET N. 7 - LENGTH 56 MM	7	07-08
DIE SET N. 8 - LENGTH 56 MM	8	08-09
DIE SET N. 10 - LENGTH 56 MM	10	10-12
DIE SET N. 12 - LENGTH 56 MM	12	12-15
DIE SET N. 15 - LENGTH 56 MM	15	15-18
DIE SET N. 17 - LENGTH 56 MM	17	17-18
DIE SET N. 18 - LENGTH 56 MM	18	18-21
DIE SET N. 20 - LENGTH 56 MM	20	20-21
DIE SET N. 21 - LENGTH 56 MM	21	21-24
DIE SET N. 24 - LENGTH 70 MM	24	24-27
DIE SET N. 27 - LENGTH 90 MM	27	27-30
DIE SET N. 30 - LENGTH 90 MM	30	30-33
DIE SET N. 33 - LENGTH 90 MM	33	33-36
DIE SET N. 36 - LENGTH 90 MM	36	36-39
DIE SET N. 39 - LENGTH 90 MM	39	39-42
DIE SET N. 42 - LENGTH 90 MM	42	42-45
DIE SET N. 45 - LENGTH 100 MM	45	45-48
DIE SET N. 48 - LENGTH 100 MM	48	48-51
DIE SET N. 51 - LENGTH 110 MM	51	51-57
DIE SET N. 54 - LENGTH 110 MM	54	54-57
DIE SET N. 57 - LENGTH 110 MM	57	57-62
DIE SET N. 60 - LENGTH 110 MM	60	60-62
DIE SET N. 62 - LENGTH 110 MM	62	62-66
DIE SET N. 62* - LENGTH 125 MM	62*	62-66
DIE SET N. 66 - LENGTH 110 MM	66	66-70
DIE SET N. 66* - LENGTH 125 MM	66*	66-70
DIE SET N. 70 - LENGTH 100 MM	70	70-72
DIE SET N. 70* - LENGTH 125 MM	70*	70-72
DIE SET N. 73 - LENGTH 125-28 MM, REINFORCED PIN	73	73-76
DIE SET N. 76 - LENGTH 125 MM	76	76-86
DIE SET N. 76* - LENGTH 135 MM	76*	76-86
DIE SET N. 80 - LENGTH 125 MM	80	80-82
DIE SET N. 82 - LENGTH 135 MM	82	82-90
DIE SET N. 86* - LENGTH 150 MM (FOR DIAMONDSPIR 2½")	86*	86-90
DIE SET N. 90 - LENGTH 125 MM	90	90-95
DIE SET N. 95 - LENGTH 150 MM (FOR DIAMONDSPIR 2½")	95*	95-105
DIE SET N. 99 - LENGTH 125 MM	99	95-105
DIE SET N. 105 - LENGTH 150 MM	105	99-109
DIE SET N. 112 - LENGTH 150 MM	112	112-122
DIE SET N. 117 - LENGTH 110 MM	117	117-127
DIE SET N. 122 - LENGTH 130 MM, REINFORCED PIN	122	122-130
KIT 13 DIE SET XLCRIMP450-200 (15 TO 73)	-	-
KIT 19 DIE SET XLCRIMP450-200(15 TO 76)	-	-

- OTHER DIMENSIONS UPON REQUEST

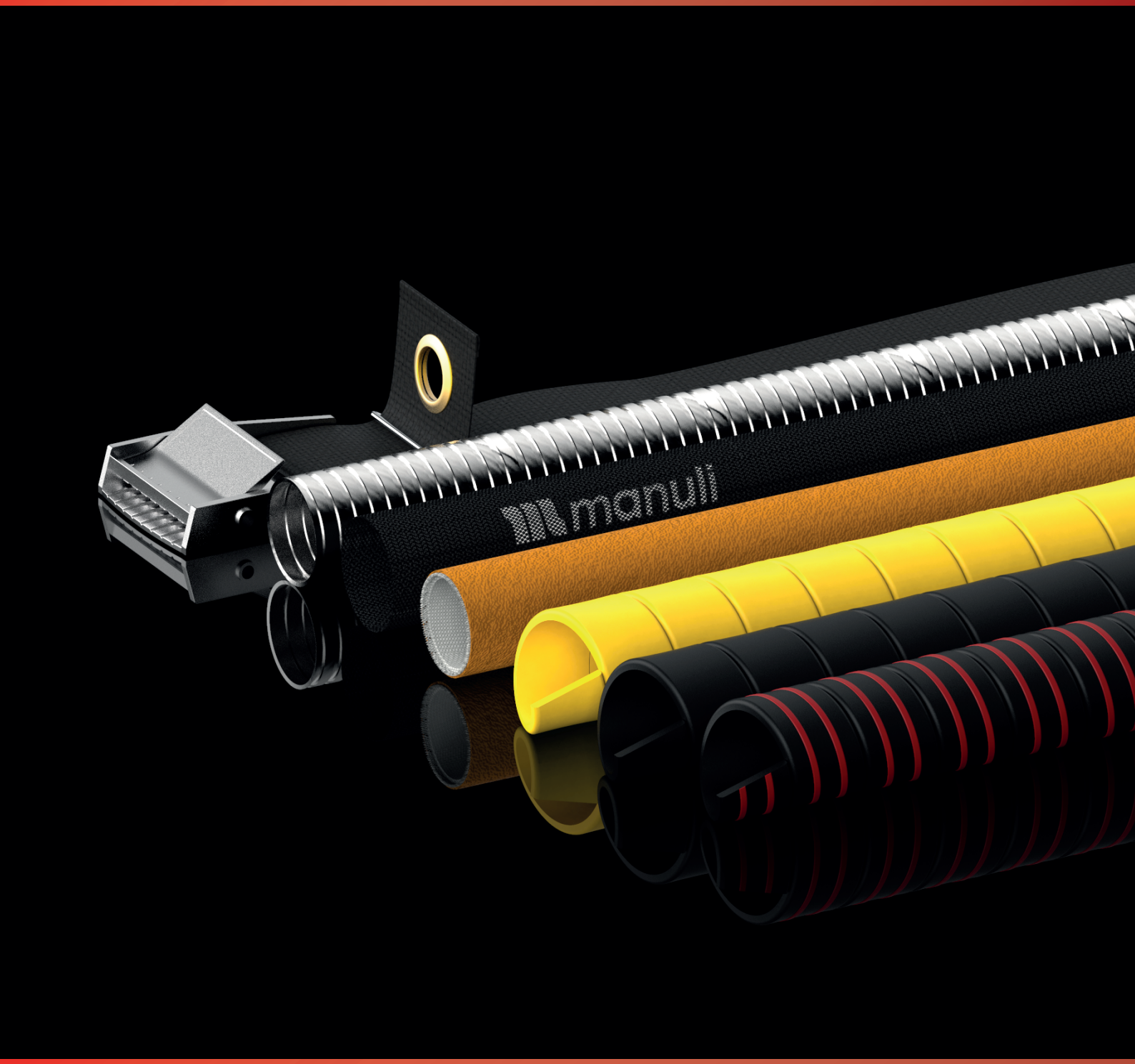
MS 550/MS 550-16

PG.579

DESCRIPTION	N°	CRIMP RANGE
DIE SET N. 73 - LENGTH 125 MM	73	73-80
DIE SET N. 80 - LENGTH 125 MM	80	80-86
DIE SET N. 86 - LENGTH 125 MM	86	86-90
DIE SET N. 90 - LENGTH 125 MM	90	90-95
DIE SET N. 95 - LENGTH 125 MM	95	95-105
DIE SET N. 99 - LENGTH 125 MM	99	99-112
DIE SET N. 112 - LENGTH 125 MM	112	112-117
DIE SET N. 117 - LENGTH 125 MM	117	117-122
DIE SET N. 122 - LENGTH 125 MM	122	122-130
DIE SET N. 130 - LENGTH 200 MM	130	130-140
DIE SET N. 140 - LENGTH 200 MM	140	140-150
DIE SET N. 150 - LENGTH 200 MM	150	150-160
DIE SET N. 156 - LENGTH 200 MM	156	156-166
DIE SET N. 160 - LENGTH 200 MM	160	160-180
DIE SET N. 165 - LENGTH 200 MM	165	165-185
DIE SET N. 170 - LENGTH 200 MM	170	170-190
DIE SET N. 176 - LENGTH 200 MM	176	176-196
DIE SET N. 178 - LENGTH 200 MM	178	178-198
DIE SET N. 180 - LENGTH 200 MM	180	180-200
DIE SET N. 200 - LENGTH 200 MM	200	200-220
DIE SET N. 215 - LENGTH 200 MM	215	215-235
DIE SET N. 225 - LENGTH 200 MM	225	225-245
DIE SET N. 230 - LENGTH 200 MM	230	230-250
DIE SET N. 235 - LENGTH 200 MM	235	235-255
DIE SET N. 250 - LENGTH 200 MM	250	250-270
DIE SET N. 260 - LENGTH 200 MM	260	260-280
DIE SET N. 265 - LENGTH 200 MM	265	265-285
DIE SET N. 280 - LENGTH 200 MM	280	280-300
DIE SET N. 282 - LENGTH 200 MM	282	282-302
DIE SET N. 285 - LENGTH 200 MM	285	285-305
DIE SET N. 290 - LENGTH 200 MM	290	290-310
DIE SET N. 308 - LENGTH 200 MM	308	308-328
DIE SET N. 317 - LENGTH 200 MM	317	317-337
DIE SET N. 330 - LENGTH 200 MM	330	330-350
DIE SET N. 340 - LENGTH 200 MM	340	340-360

- OTHER DIMENSIONS UPON REQUEST

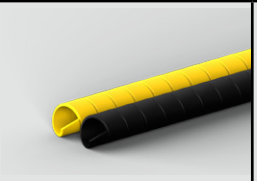
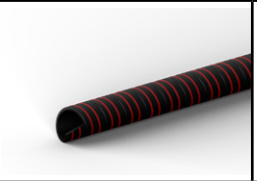
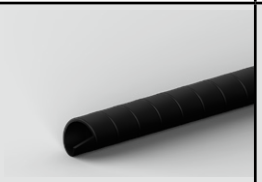
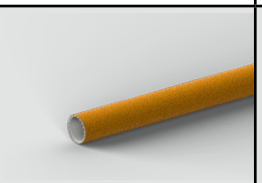
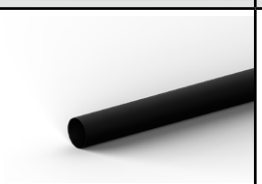
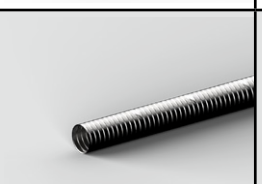
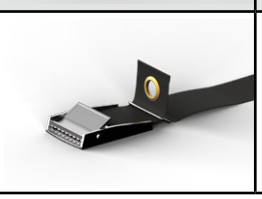
manuli®
HYDRAULICS

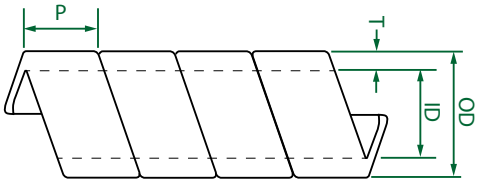


HOSE PROTECTIONS

HOSE PROTECTIONS INDEX

The Manuli Hydraulics range of hose protections is the culmination of decades of experience in the hydraulic connectors industry. Our hose protections are designed to meet the most stringent of international safety standards, whilst also actively preventing hose damage and potential injury.

PROTECTION TYPE	KEY FEATURES						
	Material	Size (mm)	Colour	Temperature Range	Specifications	Key Properties	Page No.
PROTECTION SPRING **PS** 	POLYETHYLENE	9 - 84	BLACK OR YELLOW	-40°C TO +90°C	MANULI® DESIGN	HIGH FLEXIBILITY; HIGH ABRASION RESISTANCE	608
MINING PROTECTION SPRING **MPS** 	POLYETHYLENE (ANTISTATIC)	12 - 84	BLACK WITH TWO RED LINES	-40°C TO +90°C	MANULI® DESIGN; FRAS; MSHA; ISO 6805	HIGH ABRASION RESISTANCE; FLAME RETARDANT & ANTISTATIC PROPERTIES	609
HT PROTECTION SPRING **HTPS** 	POLYAMMIDE	10 - 60	BLACK	-40°C TO +120°C	MANULI® DESIGN; MSHA	HIGH TEMPERATURE AND ABRASION RESISTANCE; FLAME RETARDANT; VERY HIGH FLEXIBILITY	610
TEXTILE SLEEVE **TSL** 	POLYESTER FIBRES	18 - 110	BLACK	-50°C TO +100°C (PEAKS +140°C)	MANULI® DESIGN; FRAS; MSHA; MDG41	FLUID ENERGY DIFFUSION; ANTI-ABRASIVE; FLAME RETARDANT & ANTISTATIC PROPERTIES	611
FIRE SLEEVE **FSL** 	SILICONE SLEEVE WITH GLASS FIBRE BRAID	13 - 76	ORANGE	-60°C TO +260°C (PEAKS +1500°C)	MANULI® DESIGN; NFF16-101 & P92-507 (CLASS FO & M2)	EXTREME HEAT RESISTANCE; EXTREME FLEXIBILITY AT LOW TEMPERATURES	612
HEAT SHRINKABLE SLEEVE **HSSL** 	POLYOLEFIN	31 - 51	BLACK	-55°C TO +125°C	UL224 VW-1	SELF EXTINGUISHING FLAME RESISTANCE; LOW VOLTAGE ELECTRICAL INSULATION	613
STAINLESS STEEL ARMOUR GUARD **SSAG** 	STAINLESS STEEL	10 - 51	SILVER	-	API 16D FIRE TEST	HIGH ABRASION RESISTANCE; EXTREME HEAT RESISTANCE	614
TEXTILE CLINCH STRAP **TCS** 	POLYESTER FIBRES	400 - 1500	BLACK	-50°C TO +100°C	MANULI® DESIGN; FRAS; MSHA	FLAME RETARDANT & ANTISTATIC PROPERTIES	615



PROTECTION SPRING

PS

PART. REF	DESCRIPTION	DIMENSIONS

		INTERNAL DIAMETER (ID)		OUTSIDE DIAMETER (OD)		WALL THICKNESS (T)		PITCH (P)		WRAPPING RANGE		WEIGHT		STANDARD PACK LENGTH	
		MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	G/M	LB/FT	M	FT
JP11B01009E099	BLACK PROTECTION SPRING DN 9	9.0	0.35	13.0	0.51	2.00	0.079	11.0	0.43	9-13	0.35-0.51	50	0.03	20	66
JP11B01012E099	BLACK PROTECTION SPRING DN 12	12.0	0.47	16.5	0.65	2.25	0.089	13.0	0.51	12-17	0.47-0.66	60	0.04	20	66
JP11B01015E099	BLACK PROTECTION SPRING DN 15	15.0	0.59	20.0	0.79	2.50	0.098	15.5	0.61	15-22	0.59-0.86	90	0.06	20	66
JP11B01019E099	BLACK PROTECTION SPRING DN 19	19.0	0.75	24.5	0.96	2.75	0.108	19.0	0.75	19-28	0.74-1.1	150	0.10	20	66
JP11B01023E099	BLACK PROTECTION SPRING DN 23	23.0	0.91	30.0	1.18	3.50	0.138	23.0	0.91	23-33	0.9-1.29	225	0.15	20	66
JP11B01031E099	BLACK PROTECTION SPRING DN 31	30.5	1.20	39.0	1.54	4.25	0.167	29.0	1.14	30-44	1.18-1.73	350	0.24	20	66
JP11B01038E099	BLACK PROTECTION SPRING DN 38	38.0	1.50	46.5	1.83	4.25	0.167	36.0	1.42	38-65	1.49-2.55	400	0.27	20	66
JP11B01047E099	BLACK PROTECTION SPRING DN 47	47.0	1.85	58.0	2.28	5.50	0.217	39.5	1.56	47-70	1.85-2.75	600	0.40	20	66
JP11B01061E099	BLACK PROTECTION SPRING DN 61	61.0	2.40	73.0	2.87	6.00	0.236	44.0	1.73	61-90	2.4-3.54	950	0.64	20	66
JP11B01071E099	BLACK PROTECTION SPRING DN 71	70.5	2.78	84.5	3.33	7.00	0.276	51.0	2.01	70-150	2.75-5.9	1150	0.77	20	66
JP11B01084E099	BLACK PROTECTION SPRING DN 84	84.0	3.31	99.0	3.90	7.50	0.295	56.0	2.20	84-200	3.3-7.87	1500	1.01	10	33
JP11Y01009E099	YELLOW PROTECTION SPRING DN 9	9.0	0.35	13.0	0.51	2.00	0.079	11.0	0.43	9-13	0.35-0.51	50	0.03	20	66
JP11Y01012E099	YELLOW PROTECTION SPRING DN 12	12.0	0.47	16.5	0.65	2.25	0.089	13.0	0.51	12-17	0.47-0.66	60	0.04	20	66
JP11Y01015E099	YELLOW PROTECTION SPRING DN 15	15.0	0.59	20.0	0.79	2.50	0.098	15.5	0.61	15-22	0.59-0.86	90	0.06	20	66
JP11Y01019E099	YELLOW PROTECTION SPRING DN 19	19.0	0.75	24.5	0.96	2.75	0.108	19.0	0.75	19-28	0.74-1.1	150	0.10	20	66
JP11Y01023E099	YELLOW PROTECTION SPRING DN 23	23.0	0.91	30.0	1.18	3.50	0.138	23.0	0.91	23-33	0.9-1.29	225	0.15	20	66
JP11Y01031E099	YELLOW PROTECTION SPRING DN 31	30.5	1.20	39.0	1.54	4.25	0.167	29.0	1.14	30-44	1.18-1.73	350	0.24	20	66
JP11Y01038E099	YELLOW PROTECTION SPRING DN 38	38.0	1.50	46.5	1.83	4.25	0.167	36.0	1.42	38-65	1.49-2.55	400	0.27	20	66
JP11Y01047E099	YELLOW PROTECTION SPRING DN 47	47.0	1.85	58.0	2.28	5.50	0.217	39.5	1.56	47-70	1.85-2.75	600	0.40	20	66
JP11Y01061E099	YELLOW PROTECTION SPRING DN 61	61.0	2.40	73.0	2.87	6.00	0.236	44.0	1.73	61-90	2.4-3.54	950	0.64	20	66
JP11Y01071E099	YELLOW PROTECTION SPRING DN 71	70.5	2.78	84.5	3.33	7.00	0.276	51.0	2.01	70-150	2.75-5.9	1150	0.77	20	66
JP11Y01084E099	YELLOW PROTECTION SPRING DN 84	84.0	3.31	99.0	3.90	7.50	0.295	56.0	2.20	84-200	3.3-7.87	1500	1.01	10	33

KEY FEATURES

- High abrasion resistance
- High flexibility
- Resistant to water, oils, fuels and hydraulic fluids
- Easy to install, no clamps needed
- High ozone and external agents resistance

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

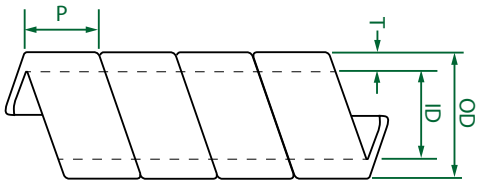
90 °C, 194 °F

MATERIAL

Polyethylene

APPLICABLE SPECS

Manuli® Design



MINING PROTECTION SPRING

MPS

PART. REF	DESCRIPTION	DIMENSIONS

		INTERNAL DIAMETER (ID)		OUTSIDE DIAMETER (OD)		WALL THICKNESS (T)		PITCH (P)		WRAPPING RANGE		WEIGHT		STANDARD PACK LENGTH	
		MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	G/M	LB/FT	M	FT
JP11B02012E099	MINING PROTECTION SPRING DN 12	12.0	0.47	16.5	0.65	2.25	0.089	13.00	0.51	12-17	0.47-0.66	60	0.04	20	66
JP11B02015E099	MINING PROTECTION SPRING DN 15	15.0	0.59	20.0	0.79	2.50	0.098	15.50	0.61	15-22	0.59-0.86	90	0.06	20	66
JP11B02019E099	MINING PROTECTION SPRING DN 19	19.0	0.75	24.5	0.96	2.75	0.108	19.00	0.75	19-28	0.74-1.10	150	0.10	20	66
JP11B02023E099	MINING PROTECTION SPRING DN 23	23.0	0.91	30.0	1.18	3.50	0.138	23.00	0.91	23-33	0.91-1.29	225	0.15	20	66
JP11B02031E099	MINING PROTECTION SPRING DN 31	30.5	1.20	39.0	1.54	4.25	0.167	29.00	1.14	30-44	1.18-1.73	350	0.24	20	66
JP11B02038E099	MINING PROTECTION SPRING DN 38	38.0	1.50	46.5	1.83	4.25	0.167	36.00	1.42	38-65	1.49-2.55	400	0.27	20	66
JP11B02047E099	MINING PROTECTION SPRING DN 47	47.0	1.85	58.0	2.28	5.50	0.217	39.50	1.56	47-70	1.85-2.75	600	0.40	20	66
JP11B02061E099	MINING PROTECTION SPRING DN 61	61.0	2.40	73.0	2.87	6.00	0.236	44.00	1.73	61-90	2.40-3.54	950	0.64	20	66
JP11B02071E099	MINING PROTECTION SPRING DN 71	70.5	2.78	84.5	3.33	7.00	0.276	51.00	2.01	70-150	2.75-5.9	1150	0.77	20	66
JP11B02084E099	MINING PROTECTION SPRING DN 84	84.0	3.31	99.0	3.90	7.50	0.295	56.00	2.20	84-200	3.31-7.87	1500	1.01	10	33

KEY FEATURES

- High abrasion resistance
- High flexibility
- Flame retardant and antistatic properties
- Resistant to water, oils, fuels and hydraulic fluids
- Easy to install, no clamps needed
- High visibility in field due to red central lines

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

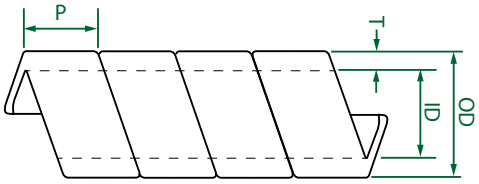
90 °C, 194 °F

MATERIAL

Polyethylene (antistatic)

APPLICABLE SPECS

Manuli® Design, MSHA, FRAS, ISO 6805



HIGH TEMPERATURE PROTECTION SPRING

HTPS

PART. REF	DESCRIPTION	DIMENSIONS

		INTERNAL DIAMETER (ID)		OUTSIDE DIAMETER (OD)		WALL THICKNESS (T)		PITCH (P)		WRAPPING RANGE		WEIGHT		STANDARD PACK LENGTH	
		MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	G/M	LB/FT	M	FT
JP12B03010I099	HT PROTECTION SPRING DN 10	9.5	0.37	11.5	0.45	1.00	0.039	6.9	0.27	9-13	0.35-0.51	27	0.02	24	79.2
JP12B03011I099	HT PROTECTION SPRING DN 11	11.0	0.43	13.0	0.51	1.00	0.039	6.9	0.27	11-13	0.43-0.52	35	0.025	24	78.7
JP12B03013I099	HT PROTECTION SPRING DN 13	12.7	0.50	16.3	0.64	1.80	0.071	13.0	0.51	13-17	0.51-0.67	45	0.03	24	79.2
JP12B03014I099	HT PROTECTION SPRING DN 14	14.0	0.55	17.6	0.69	1.80	0.071	13.0	0.51	14-17	0.55-0.67	50	0.035	24	78.7
JP12B03016I099	HT PROTECTION SPRING DN 16	16.0	0.63	19.6	0.77	1.80	0.071	13.0	0.51	16-22	0.63-0.87	55	0.04	24	79.2
JP12B03019I099	HT PROTECTION SPRING DN 19	19.0	0.75	23.6	0.93	2.30	0.091	16.0	0.63	19-28	0.75-1.10	100	0.07	24	79.2
JP12B03025I099	HT PROTECTION SPRING DN 25	25.4	1.00	30.0	1.18	2.30	0.091	16.0	0.63	25-40	0.98-1.57	110	0.07	24	79.2
JP12B03028I099	HT PROTECTION SPRING DN 28	28.0	1.10	35.2	1.39	3.60	0.142	25.0	0.98	28-48	1.10-1.89	225	0.15	24	79.2
JP12B03035I099	HT PROTECTION SPRING DN 35	35.0	1.38	42.2	1.66	3.60	0.142	25.0	0.98	35-50	1.38-1.97	270	0.18	24	79.2
JP12B03050I099	HT PROTECTION SPRING DN 50	50.0	1.97	60.0	2.36	5.00	0.197	35.0	1.38	50-70	1.97-2.76	540	0.36	12	39.6
JP12B03060I099	HT PROTECTION SPRING DN 60	60.0	2.36	70.0	2.76	5.00	0.197	35.0	1.38	60-80	2.36-3.15	640	0.43	12	39.6

KEY FEATURES

- High temperature resistance
- High abrasion resistance
- Very high flexibility
- Very low bend radius
- Flame retardant, MSHA approved
- Resistant to water, oils, fuels and hydraulic fluids
- Easy to install, no clamps needed

CONTINUOUS SERVICE TEMPERATURE RANGE

-40 °C, -40 °F

120 °C, 248 °F

MATERIAL

Polyamide

APPLICABLE SPECS

Manuli® Design, MSHA

manuli® HYDRAULICS

TEXTILE SLEEVE

TSL



PART. REF	DESCRIPTION	DIMENSIONS

		INTERNAL DIAMETER (ID)		EXTERNAL FLATTENED WIDTH		WEIGHT		STANDARD PACK LENGTH	
		MM	IN	MM	IN	G/M	LB/FT	M	FT
JP23B06018I099	TEXTILE SLEEVE DN 18	18.0	0.71	32.0	1.26	2.0	4.4	50	165
JP23B06023I099	TEXTILE SLEEVE DN 23	23.0	0.91	40.0	1.57	2.2	4.8	50	165
JP23B06029I099	TEXTILE SLEEVE DN 29	29.0	1.14	49.0	1.93	2.5	5.5	50	165
JP23B06036I099	TEXTILE SLEEVE DN 36	36.0	1.42	56.0	2.20	3.0	6.6	50	165
JP23B06040I099	TEXTILE SLEEVE DN 40	40.0	1.57	63.0	2.48	3.2	7.0	50	165
JP23B06056I099	TEXTILE SLEEVE DN 56	56.0	2.20	88.0	3.46	4.0	8.8	50	165
JP23B06063I099	TEXTILE SLEEVE DN 63	63.0	2.48	105.0	4.13	5.0	11.0	50	165
JP23B06071I099	TEXTILE SLEEVE DN 71	70.0	2.80	115.0	4.53	5.5	12.1	50	165
JP23B06093I099	TEXTILE SLEEVE DN 93	93.0	3.66	146.0	5.75	7.2	15.8	50	165
JP23B06110I099	TEXTILE SLEEVE DN 110	110.0	4.33	176.0	6.93	8.5	18.7	50	165

KEY FEATURES

- High abrasion resistance
- Resistant to water, oils, fuels and hydraulic fluids
- Fluid energy diffusion in case of hose failure to prevent direct jetting
- Easy to install with simple clamps to extremities
- Flame retardant and antistatic properties

CONTINUOUS SERVICE TEMPERATURE RANGE

-50 °C, -58 °F

100 °C, 212 °F

MAX. OPERATING TEMPERATURE

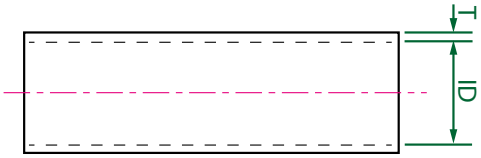
140 °C, 284 °F

MATERIAL

Polyester fibres

APPLICABLE SPECS

Manuli® Design, MSHA, FRAS, MDG41



FIRE SLEEVE

FSL

PART. REF	DESCRIPTION	DIMENSIONS

		INTERNAL DIAMETER (ID)		APPROX. WALL THICKNESS (T)		WEIGHT		STANDARD PACK LENGTH	
		MM	IN	MM	IN	G/M	LB/FT	M	FT
JP24A05013I099	FIRE SLEEVE DN 13	13.0	0.51	4.0	0.16	200.0	0.13	50	165.0
JP24A05016I099	FIRE SLEEVE DN 16	16.0	0.63	4.0	0.16	220.0	0.15	50	165.0
JP24A05019I099	FIRE SLEEVE DN 19	19.0	0.75	4.0	0.16	240.0	0.16	50	165.0
JP24A05022I099	FIRE SLEEVE DN 22	22.0	0.87	4.0	0.16	260.0	0.17	50	165.0
JP24A05025I099	FIRE SLEEVE DN 25	25.0	0.98	4.0	0.16	290.0	0.19	50	165.0
JP24A05032I099	FIRE SLEEVE DN 32	32.0	1.26	4.0	0.16	380.0	0.26	50	165.0
JP24A05038I099	FIRE SLEEVE DN 38	38.0	1.50	4.0	0.16	440.0	0.30	50	165.0
JP24A05045I099	FIRE SLEEVE DN 45	45.0	1.77	4.0	0.16	490.0	0.33	25	82.5
JP24A05051I099	FIRE SLEEVE DN 51	51.0	2.01	4.0	0.16	540.0	0.36	25	82.5
JP24A05064I099	FIRE SLEEVE DN 64	64.0	2.52	4.0	0.16	680.0	0.46	20	66.0
JP24A05076I099	FIRE SLEEVE DN 76	76.0	2.99	4.0	0.16	880.0	0.59	20	66.0

KEY FEATURES

- Extreme heat resistance
- Extreme flexibility at low temperatures
- Designed to protect and insulate hydraulic hoses and bundles of hoses against flames, metal projections, melting glass etc.
- Easy to install, no clamps needed

CONTINUOUS SERVICE TEMPERATURE RANGE

-60 °C, -76 °F

260 °C, 500 °F

MAX. OPERATING TEMPERATURE

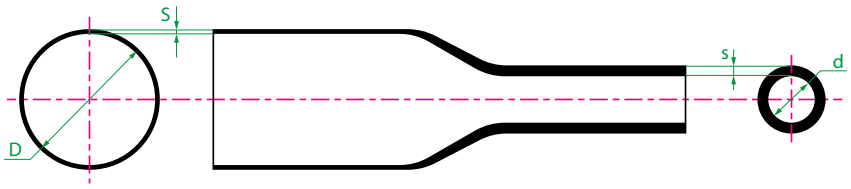
1100 °C, 2012 °F for 15 minutes; 1500 °C, 2732 °F for 1 minute;

MATERIAL

Silicone sleeve with glass-fibre braid

APPLICABLE SPECS

Manuli® Design, NFF16-101 and P92-507 (class FO and M2)



HEAT SHRINKABLE SLEEVE

HSSL

PART. REF	DESCRIPTION	DIMENSIONS

		INTERNAL DIAMETER (D) - EXPANDED TUBE		INTERNAL DIAMETER (d) - RECOVERED TUBE		WALL THICKNESS (S) - EXPANDED TUBE		WALL THICKNESS (s) - RECOVERED TUBE		WEIGHT		STANDARD PACK LENGTH	
		MM	IN	MM	IN	MM	IN	MM	IN	G/M	LB/FT	M	FT
JP21B11076I099	HEAT SHRINKABLE SLEEVE DN 31 / DN 38	76.2	3.00	38.1	1.50	0.6	0.024	2.0	0.079	310	0.21	15	49.2
JP21B11102I099	HEAT SHRINKABLE SLEEVE DN 51	101.6	4.00	50.8	2.00	1.0	0.039	2.5	0.098	520	0.35	15	49.2

KEY FEATURES

- Self extinguishing
- Low voltage electrical insulation
- Easy to install with simple hot air jetting
- Protects ferrule from dirt and moisture ingression

CONTINUOUS SERVICE TEMPERATURE RANGE

-55 °C, -67 °F

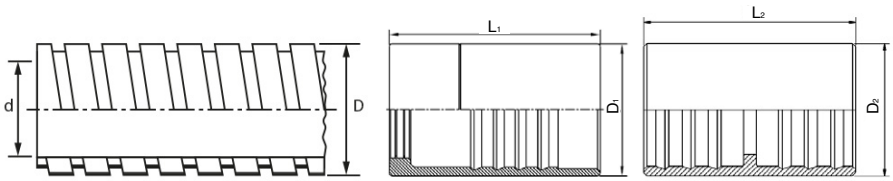
125 °C, 257 °F

MATERIAL

X-linked polyolefin heat shrinkable thin wall

APPLICABLE SPECS

UL 224 VW-1 for flame resistance



STAINLESS STEEL ARMOUR GUARD

SSAG

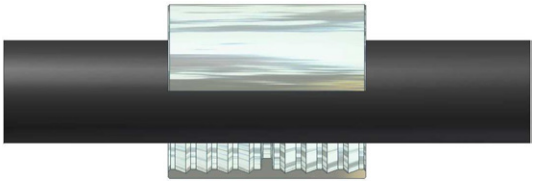
PART. REF	DESCRIPTION	DIMENSIONS	METAL SLEEVE	ARMOUR JOINT

		INTERNAL DIAMETER (d)		OUTSIDE DIAMETER (D)		MIN. BEND RADIUS		WEIGHT		PART. REF	D1	L1	PART. REF	D2	L2
		MM	IN	MM	IN	MM	IN	G/M	LB/FT		MM	MM		MM	MM
JP45G090280099	STAINLESS STEEL ARMOUR GUARD DN10	25	1”	32.0	1.26	127	5.00	565	0.38	IO2110-06GA	40.5	60	IO84210-06	40.5	65
JP45G090320099	STAINLESS STEEL ARMOUR GUARD DN 12	31	1.1/4”	36.5	1.44	150	5.91	703	0.47	IO2110-08GA	46.8	75	IO84210-08	46.8	65
JP45G090400099	STAINLESS STEEL ARMOUR GUARD DN 16	38	1.1/2”	44.5	1.75	180	7.09	939	0.63	IO2110-10GA	53.2	90	IO84210-10	53.2	65
JP45G090450099	STAINLESS STEEL ARMOUR GUARD DN 19	46	1.3/4”	51.0	2.01	240	9.45	1,118	0.75	IO2110-12GA	59.5	105	IO84210-12	59.5	70
JP45G090500099	STAINLESS STEEL ARMOUR GUARD DN 25	51	2”	57.5	2.26	300	11.81	1,301	0.87	IO2110-16GA	66.0	120	IO84210-16	66.0	75
JP45G090650099	STAINLESS STEEL ARMOUR GUARD DN 31	63	2.1/2”	70.0	2.76	420	16.54	1,636	1.10	IO2110-20GA	78.6	135	IO84210-20	78.6	95
JP45G090750099	STAINLESS STEEL ARMOUR GUARD DN 38	76	3”	82.5	3.27	500	19.69	1,920	1.29	IO2110-24GA	91.5	150	IO84210-24	91.5	105
JP45G090900099	STAINLESS STEEL ARMOUR GUARD DN 51	89	3.1/2”	96.0	3.78	630	24.80	2,386	1.60	IO2110-32GA	106.5	165	IO84210-32	106.5	115

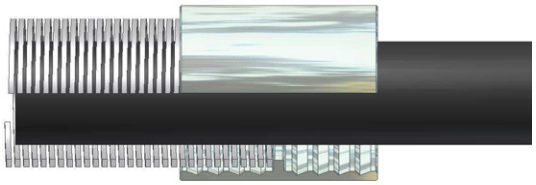
ARMOUR JOINING PROCEDURE

Individual pieces of the metal sleeve can be joined using a dedicated Armour Joint. The procedure for joining the pieces of flexible armour is as follows:

1. Slide the Armour Joint onto the hose.

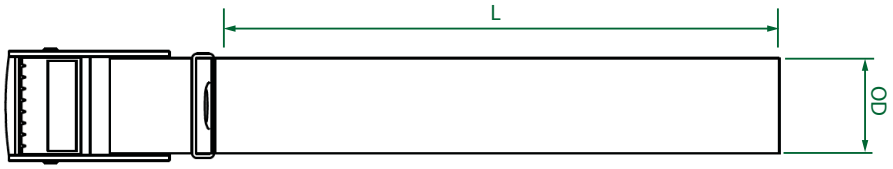


2. Insert the first piece of flexible armour into the Armour Joint until it reaches the internal stop.



3. Insert the second piece of flexible armour into the other side of the Armour Joint until it also reaches the internal stop





TEXTILE CLINCH STRAP

TCS

PART. REF	LENGTH (Circumference of hose bundles)		STRAP WIDTH		STD. PACK		
	MM	IN	MM	IN	QTY.	KG	LB
JP33B10040T099	400	15.7	25	0.98	100	5.0	11.0
JP33B10080T099	800	31.5	25	0.98	100	6.0	13.2
JP33B10150T099	1500	59.1	25	0.98	100	7.5	16.5

KEY FEATURES

- High abrasion resistance
- Flame retardant, MSHA approved
- Resistant to water, oils, fuels and hydraulic fluids
- Easy to install, eyelets for hose bundle hanging purposes
- Metal buckle for robust fastening in any environment

CONTINUOUS SERVICE TEMPERATURE RANGE

-50 °C, -58 °F

100 °C, 212 °F

MATERIAL

Polyester fibres

APPLICABLE SPECS

Manuli® Design, MSHA, FRAS

manuli®
HYDRAULICS



APPENDICES



Inside Diameter (I.D.)



Outside Diameter (O.D.)



Minimum Bend Radius



Reinforcement Outside Diameter (R.O.D.)



Maximum Working Pressure



Ferrule / Socket



Weight



Burst Pressure: The minimum guaranteed burst pressure of the hose;
Equivalent or superior to the minimum requirements of the reference specifications.



Insert:

MF	MF2000® Multifit type
IP	MF2000® Interlock Plus type
SP	MF2000® Spiralfit type
SPGX	MF2000® Spiralfit GX type
IS	MF2000® Interlock Super type
BL	MF2000® Blastlock type
PL	MF2000® Push-Lock type



Working pressure: The maximum pressure at which correct functioning of the quick coupling is assured. The working pressure is assured in both connected and disconnected states.



Flow Rate: The quantity of fluid which passes through a cross section of the quick coupling in a specified unit of time.



Connection Effort: The effort required to lock the male insert into the female.



Oil Spillage: The quantity of fluid lost from the coupling during the connection/disconnection process.



Connection/Disconnection under pressure: Ability to connect and disconnect with the quick coupling under pressure.

Continuous service: Refers to the working temperature range

Max. operating temperature (Intermittent service): Peaks of temperature of short duration and total cumulative duration lower than 5% of the total service life.

Recommended fluids: Fluid types that the hose can convey with excellent / good chemical compatibility.

Hose service life: Cumulative duration of time in which the hose is under operative conditions.

HOSE SIZE CONVERSION CHART

DASH SIZE	STANDARD HYDRAULIC HOSES		SAE 100 R5 HOSES	
	DN	inch	DN	inch
-03	5	3/16	-	-
-04	6	1/4	5	3/16
-05	8	5/16	6	1/4
-06	10	3/8	8	5/16
-08	12	1/2	10	13/32
-10	16	5/8	12	1/2
-12	19	3/4	16	5/8
-16	25	1	22	7/8
-20	31	1 1/4	29	1 1/8
-24	38	1 1/2	35	1 3/8
-32	51	2	46	1 13/16
-40	63	2 1/2	60	2 3/8
-48	76	3	-	-
-56	89	3 1/2	-	-
-64	102	4	-	-

NUT TIGHTENING METHODS

NOTE: *Torque values provided are always to be considered in DRY conditions - that is, when no oil or lubrication is used on the threads or sealing surfaces.*

TORQUE WRENCH METHOD

If practicable the use of a suitable, calibrated torque wrench is strongly recommended

1. Screw the fitting by hand on the male fitting / adaptor
2. In the case of a straight fitting, whilst blocking the counter-hex with a standard wrench apply the required torque to the nut
3. In the case of an elbow fitting, block the tail of the fitting with a suitable tool and then apply the required torque to the nut



FLATS / ROTATION ANGLE METHOD

If the use of a torque wrench is not possible, the flat rule (or nut rotation angle rule) can be applied.

1. Screw the fitting by hand on the male adaptor until the metal to metal contact between the sealing surfaces is reached
2. Mark the relative position between the nut and the adapter
3. Apply the prescribed number of flats by blocking the counter-hex with a standard wrench (straight fitting) or the tail with a proper tool (elbow fitting)



WARNING

Result from flat rule method can be affected from the operator:

- During the start phase different hand tightening to achieve the metal to metal contact can change the start position
- During the final phase marks on nut and adaptor can be not very accurate and the final position can be misread

TORQUING METHODS

In the following tables the tightening values are given according to one or more of the following methods:

ASSEMBLY TORQUE - This is the preferred and most precise method, which should be used whenever possible. Value given is the torque in N.m to be applied using a suitable calibrated torque wrench

ROTATION ANGLE - Value is the number of degrees that the nut should be rotated through AFTER metal-to-metal contact is made from finger-tightening

NUMBER OF FLATS - Value is the number of flats that the nut should be rotated through AFTER metal-to-metal contact is made from finger-tightening

NUT TIGHTENING TORQUE VALUES FOR BSP FITTINGS

Size	BSP Thread Size	MANULI BSP FITTINGS WITH O-RING (ISO STYLE A)	MANULI BSP FITTINGS WITHOUT O-RING (ISO STYLE B)
		Assembly Torque* [N.m] $^{+10}_{-0}$	Assembly Torque* [N.m] $^{+10}_{-0}$
1/4"	G 1/4" -19	20	20
3/8"	G 3/8" -19	38	35
1/2"	G 1/2" -14	55	60
5/8"	G 5/8" -14	60	70
3/4"	G 3/4" -14	90	115
1"	G 1" -11	120	140
1 1/4"	G 1 1/4" -11	190	210
1 1/2"	G 1 1/2" -11	250	290
2"	G 2" -11	300	400

*** IMPORTANT:** Recommended MRI Torque Values are only applicable for nut tightening in **DRY conditions** (no oil or lubrication on threads and sealing surfaces)

NUT TIGHTENING TORQUE VALUES FOR ORFS FITTINGS

Size	ORFS Thread Size	MANULI ORFS FITTINGS		
		Assembly Torque* [N.m] $^{+10}_{-0}$	Rotation Angle [degrees]	No. of Flats [Flats]
1/4"	9/16" -18	26	45°	3/4
3/8"	11/16" -16	42	45°	3/4
1/2"	13/16" -16	57	60°	3/4
5/8"	1" -14	85	45°	1
3/4"	1 3/16" -12	122	45°	3/4
1"	1 7/16" -12	156	45°	3/4
1 1/4"	1 11/16" -12	200	45°	3/4
1 1/2"	2" -12	256	45°	3/4

*** IMPORTANT:** Recommended MRI Torque Values are only applicable for nut tightening in **DRY conditions** (no oil or lubrication on threads and sealing surfaces)

NUT TIGHTENING TORQUE VALUES FOR JIC FITTINGS

Size	JIC Thread Size	MANULI JIC CRIMPED BACK NUT FITTINGS			MANULI JIC SLIP-ON NUT & THRUST-WIRE FITTINGS
		Assembly Torque* [N.m] $^{+10}_{-0}$	Rotation Angle [degrees]	No. of Flats [Flats]	Assembly Torque* [N.m] $^{+10}_{-0}$
1/4"	7/16" -20	16	90°	1 1/2	16
3/8"	9/16" -18	28	90°	1 1/2	28
1/2"	3/4" -16	53	120°	2	53
5/8"	7/8" -14	85	120°	2	85
3/4"	1 1/16" -12	119	60°	1	119
1"	1 5/16" -12	147	60°	1	147
1 1/4"	1 5/8" -12	172	60°	1	172
1 1/2"	1 7/8" -12	215	60°	1	215
2"	2 1/2" - 12	332	60°	1	332

* **IMPORTANT:** Recommended MRI Torque Values are only applicable for nut tightening in **DRY conditions** (no oil or lubrication on threads and sealing surfaces)

NUT TIGHTENING TORQUE VALUES FOR METRIC FITTINGS

Metric Thread Size	MANULI DKOL FITTINGS		MANULI DKOS FITTINGS	
	Pipe O.D [mm]	Assembly Torque* [N.m] $^{+10}_{-0}$	Pipe O.D [mm]	Assembly Torque* [N.m] $^{+10}_{-0}$
M12 x 1.5	6L	13		
M14 x 1.5	8L	23	6S	23
M16 x 1.5	10L	32	8S	32
M18 x 1.5	12L	38	10S	38
M20 x 1.5			12S	45
M22 x 1.5	15L	53	14S	53
M24 x 1.5			16S	59
M26 x 1.5	18L	77		
M30 x 2	22L	100	20S	100
M36 x 2	28L	114	25S	114
M42 x 2			30S	180
M45 x 2	35L	200		
M52 x 2	42L	255	38S	255

* **IMPORTANT:** Recommended MRI Torque Values are only applicable for nut tightening in **DRY conditions** (no oil or lubrication on threads and sealing surfaces)

NUT TIGHTENING TORQUE VALUES FOR NPTF-NPSM FITTINGS

NPTF-NPSM Thread Size	MANULI NPTF MALE MATED WITH NPTF PORT	MANULI NPTF MALE MATED WITH NPSM FEMALE
	Max. Assembly Torque*† [N.m]	Max. Assembly Torque* [N.m]
1/8" -27	20	10
1/4" -18	30	15
3/8" -18	40	20
1/2" -14	55	27
3/4" -14	70	35
1" -11.5	90	45
1 1/4" -11 1/2	100	50
1 1/2" -11 1/2	120	60
2" - 11 1/2	150	75

*** IMPORTANT:** Recommended MRI Torque Values are only applicable for nut tightening in **DRY conditions** (no oil or lubrication on threads and sealing surfaces)

† If thread sealant is used, maximum values show above should be decreased by 25%

XTRAFLANGE TIGHTENING TORQUE VALUES

Size	WP (bar)	Counter-Flange Code	O-Ring (NBR 90 ShA)	METRIC BOLT (CLASS 10.9)		UNC BOLT (GRADE 8)		Bolt Torque* [N.m] $^{+10}_{-0}$
				Thread	Length (mm)	Thread	Length (mm)	
XTRAFANGE/61								
1"	420	O88407-16	32.92 x 3.53	M10	45	3/8" -16	44	70
1 1/4"	420	O88407-20	37.69 x 3.53	M10	45	7/16" -14	51	70
1 1/2"	420	O88407-24	47.22 x 3.53	M12	55	1/2" -13	57	130
2"	420	O88407-32	56.74 x 3.53	M12	55	1/2" -13	57	130
2 1/2"	420	O88407-40	69.44 x 3.53	M12	65	1/2" -13	70	130
XTRAFANGE/62								
3/4"	560	O88507-12	24.99 x 3.53	M10	45	3/8" -16	44	70
1"	560	O88507-16	32.92 x 3.53	M12	50	7/16" -14	51	130
1 1/4"	560	O88507-20	37.69 x 3.53	M14	65	1/2" -13	64	180
1 1/2"	560	O88507-24	47.22 x 3.53	M16	75	5/8" -11	76	290
2"	450	O88507-32	56.74 x 3.53	M20	95	3/4" -10	95	450
2 1/2"	350	O88507-40	69.44 x 3.53	M24	110 **	1" -8	102	550
3"	420	O88507-48	85.32 x 3.53	M30	100	-	102	650

*** IMPORTANT:** Recommended MRI Torque Values are only applicable for nut tightening in **DRY conditions** (no oil or lubrication on threads and sealing surfaces)

** Can be reduced to 100mm

WARNING: Compatibility of hose and fittings with conveyed fluid is an essential factor in avoiding chemical reactions that may result in release of fluids or failure of the hose or connection. This chemical compatibility guide must not be used in conjunction with any other compatibility guides from previous or future catalogue editions, bulletins or publications. Incorrect use of these charts could result in personal injury or property damage.

HOSE SELECTION BY MEDIUM AND HOSE TYPE

This hose compatibility chart is a reference of Manuli Hydraulics hose compatibility with various fluid media. It is intended as a guide to chemical compatibility with inner tube materials and assembly lubricants applied internally to the hose. The Fluid Compatibility Chart lists the relative resistance of hose tube and fitting materials to more common:

- **hydraulic oils**
- **other diversified oils families (for hydrokinetic and lubrication applications)**
- **chemicals**

The ratings shown do not cover all possible variations of all factors, such as temperature, concentration, degradation or fluid contamination, etc. Testing under actual conditions is the best way to assure chemical compatibility for critical applications.

PART 1: HYDROSTATIC OILS COMPATIBILITY CHART (ACTUAL HYDRAULIC SYSTEMS AND APPLICATIONS)

The specific recommendations regarding **hydraulic fluids** are based upon specific laboratory bench tests with fluids, performed according to ISO 1817 and internal methodology, integrated with field experiences and the advices of various polymers or fluid suppliers. **It must be stressed, however, that this information is offered only as a guide and is not a guarantee**. Final hose selection also depends upon pressure, fluid and ambient temperatures, concentration, duration of exposure and special requirements or variations, which may not be known by Manuli Hydraulics. Legal and other regulations must be followed with particular attention.

All the combined factors in working operations may impact on the service life of the hose assembly and must be carefully considered before releasing a hose for a specific application: the chemical compatibility with the service fluid is only one of the factors to be considered.

It is always recommended to test the specific fluid brand name with the requested hose, in order to verify chemical compatibility. Manuli Hydraulics constantly performs compatibility tests as service to market, progressively updating the compatibility chart.

PART 2: HYDROKINETIC APPLICATIONS AND LUBRICANT OILS COMPATIBILITY CHART (AUTOMATED TRANSMISSIONS AND VARIOUS LUBRICATION SYSTEMS)

This second part of the compatibility chart list a particular family of oils, not designed for standard hydraulics (hydrostatic applications), rather studied for many diversified applications such as lubrication for gear, compressors, turbines, diatermic oils for cooling or heat transmission, and ATF (Automatic Transmission Fluids) oils for the hydrokinetic (hydrodynamic) applications. These fluids are often very aggressive on traditional tube rubbers, more than hydraulic oils, due to the nature of the fluids and additives, aimed to give properties of long life duration and high temperature resistance; that's why their chemical compatibility with tube rubbers must be carefully checked before eventual use.

WARNING: Compatibility of hose and fittings with conveyed fluid is an essential factor in avoiding chemical reactions that may result in release of fluids or failure of the hose or connection. This chemical compatibility guide must not be used in conjunction with any other compatibility guides from previous or future catalogue editions, bulletins or publications. Incorrect use of these charts could result in death, personal injury or property damage.

It is to be underlined that Manuli hoses are designed in principle for use with hydraulic oils only, and that diversified applications such as the ones with these categories of other oils, must be verified case by case with lab and/or field tests by users under their sole and exclusive responsibility and no liability whatsoever can be attributed to Manuli Hydraulics in that regard.

For more detailed information contact Manuli Hydraulics or visit www.manuli-hydraulics.com

PART 3: BEHAVIOUR TO CHEMICALS (GUIDELINES FROM LITERATURE) FOR NON-HYDRAULIC APPLICATIONS

WARNING: Manuli hoses are designed for hydraulics use and applications, they are not intended for industrial diversified applications with various chemicals.

The recommendations regarding generic chemicals are mainly based on literature data in conjunction with polymers used for the tube compound. The field results of the fluid conveyed in the hose should be carefully tested and field validated by users.

No test on finished hose assemblies in combination with the mentioned chemicals has been normally performed.

The possible good rating and on field performance of the hose with a chemical mentioned in the list does not mean in any case the release by Manuli Hydraulics of the product for that application or any guarantee. The possible validation for use is under the sole and exclusive responsibility of the end user and no liability whatsoever can be attributed to Manuli Hydraulics in that regard. In fact Manuli Hydraulics hoses are designed for hydraulics use and applications, they are not intended for industrial diversified applications with various chemicals.

The outer cover of the hose is intended to protect the reinforcement layer(s) from mechanical influences (abrasion, weathering etc.); cover compounds are not designed to exhibit the same chemical resistance as the tube compounds. Manuli Hydraulics should be consulted about the compatibility of the cover, should the application involve the extended exposure or immersion in a liquid: **anyway the hydraulic hoses of the Manuli Hydraulics product range are not designed in general for immersion in the service fluid.**

This type of special applications should be avoided or carefully studied with additional external protections for the hoses, selection of special hose types, e.g. with thermoplastic cover and validation on the specific application. The turbulence of the fluid, the high temperature and nature of the fluid as well as other elements may impact the properties or integrity of the hose cover material (the cover compound of the hose is designed to resist to oil drops and external agents, not immersion in the service fluid).

For more detailed information contact Manuli Hydraulics or visit www.manuli-hydraulics.com

WARNING: No tests on finished hose assemblies in combination with the mentioned chemicals has been normally performed. The possible good rating and on field performance of the hose with a chemical mentioned in the list, does not mean in any case the release by Manuli Hydraulics of the product for that application or any guarantee. The possible validation for use is under the sole and exclusive responsibility of the end user and no liability whatsoever can be attributed to Manuli Hydraulics in that regard. In fact Manuli Hydraulics hoses are designed for hydraulics use and applications, they are not intended for industrial diversified applications with various chemicals. No tests on finished hose assemblies in combination with the mentioned chemicals has been normally performed.

WARNING: Compatibility of hose and fittings with conveyed fluid is an essential factor in avoiding chemical reactions that may result in release of fluids or failure of the hose or connection. This chemical compatibility guide must not be used in conjunction with any other compatibility guides from previous or future catalogue editions, bulletins or publications. Incorrect use of these charts could result in death, personal injury or property damage.

LEGEND OF THE HOSE TYPES BY TUBE COMPOUNDS

TUBE COMPOUND CATEGORIES	HOSE CATEGORIES	HOSE TYPES
NITRILE	STD WIRE BRAID	ROCKMASTER, HARVESTER/17, SHIELDMASTER, GOLDENISO, COVER, CRYOFLEX, TWINPOWER/4000, TWINPOWER/5000
NITRILE	STD WIRE SPIRAL	ROCKMASTER, GOLDENISO, SHIELDMASTER, ANACONDA, FOREMASTER, CRYOFLEX, DIAMONDSPIR, XTRAFLOW/4WS, HYDROROPE, HERCULES
NITRILE	HI-PER WIRE BRAID	FOREMASTER, GOLDENISO/PILOT, ROCKMASTER/1SC, SYNERGY, INFINITY
NITRILE	TEXTILE REINF.	ASTRO, SPIRTEX, MULTITEX, PUSHFIT
CHLOROPRENE		TWINPOWER/PLUS, GOLDENBLAST
CHLOROSULPHONATED POLYETHYLENE		EQUATOR/1 (BLUE & BLACK), EQUATOR/2 (BLUE & BLACK), XTRAFLOW/HT
CHLORINATED POLYETHELENE		MASTERTEX
POLYESTER		HYDROPLAST, HYDROTWIN

HOW TO USE THE CHART

- Hydraulic fluids are listed in alphabetic order with the manufacturer brand name and ISO identification symbol (DIN when available), chemicals are listed alphabetically
- Find the hose type and read the compatibility rating (see rating scale)
- Define the proper hose selection for the application by choosing the best rating

LEGEND OF RATINGS

E = Excellent - Small or negligible changes of compound properties: no problem for use. Service life can exceed the expectations.

G = Good - There are only minor changes of some compound properties. Service life is normally in line with state of the art (standard) expectations.

FT = Field Test recommended - A field test is recommended to allow the end user to either validate the selection in the actual working conditions or to reject the selection. Results of compatibility from lab testing show significant changes on some compound properties, service life can be reduced. Higher durability can be achieved with reduced severity of working conditions (temperature in particular) or with an upgraded hose selection. After the results of the recommended field test, if the end user decides to use the selected hoses under his validation, the end users assumes all responsibility with regard to any possible effects and consequences arising out of the using of hoses in the actual working conditions and Manuli Hydraulics cannot be held responsible for any claims in relation to or connected with the hoses for which it was recommended to perform a field test.

X = Not recommended - Unsuitable, severe effects on physical properties.

REMARKS

O-Rings used with couplings must also be considered for chemical compatibility with the fluid to be conveyed. This includes fittings containing internal O-Rings; for example Metric Female 24° Cone seat fittings, etc. Standard O-Ring of Manuli Hydraulics fittings are made of Nitrile rubber (NBR), highly chemically compatible with all hydraulic fluids. If you use special fluids or very high temperatures, different O-Ring materials should be used, contact Manuli Hydraulics for specific information. See Technical Manual for dimensions of O-Rings.

Compatibility of hose fittings with conveyed fluids is an essential factor in avoiding chemical reactions that may result in release of fluids and failure of the connection with the potential of causing severe personal injury or property damage. Standard Manuli Hydraulics fittings are made of carbon steel with Hexavalent chromium free plating.

WARNING: Compatibility of hose and fittings with conveyed fluid is an essential factor in avoiding chemical reactions that may result in release of fluids or failure of the hose or connection. This chemical compatibility guide must not be used in conjunction with any other compatibility guides from previous or future catalogue editions, bulletins or publications. Incorrect use of these charts could result in death, personal injury or property damage.

OILS CLASSIFICATION - ACCORDING TO ISO 6743-4

ISO 6743-4 is an important norm regarding “Lubricants, industrial oils and related products (class L)”. The norm defines a very wide family of oils, used in many different sectors and applications.

The oils must be carefully understood and properly managed to avoid problems and possible mistakes. The Part 4 of the norm in particular regards the Hydraulic Oils (Family H), for hydrostatic and hydrokinematic applications, the other parts of the norm regard other fluids, of different nature or aimed to different applications than hydraulics.

Manuli Hydraulics hoses are designed and qualified for use with Hydraulic Oils (Family H of the ISO 6743-4), and the behaviour of the particular oil formulation has to be verified case by case.

The applications with oils of the families different than H must be checked carefully but in principle Manuli Hydraulics hoses are not designed for use with them.

Here below the classification of oils by ISO 6743 spec.

Part 1: Family A (Total Loss systems)

Part 2: Family F (Spindle bearings, bearings and associated clutches)

Part 3A: Family D (Compressors)

Part 3B: Family D (Gas and refrigeration compressors)

Part 4: Family H (Hydraulic Systems)

Part 5: Family T (Turbines)

Part 6: Family C (Gears)

Part 7: Family M (Metalworking)

Part 8: Family R (Temporary protection against corrosion)

Part 9: Family X (Greases)

Part 10: Family Y (Miscellaneous)

Part 11: Family P (Pneumatic tools)

Part 12: Family Q (Heat Transfer Fluids)

Part 13: Family G (Slideways)

Part 14: Family U (Heat treatment)

Part 15: Family E (Internal combustion engines)

Part 99: General

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FLUID COMPATIBILITY CHART

The Family H in particular, object of use with Manuli Hydraulics hoses is composed by the following families of oils, identified by ISO dedicated symbols, used also in the compatibility chart.

GENERAL APPLICATION	PARTICULAR APPLICATION	MORE SPECIFIC APPLICATIONS	COMPOSITION AND PROPERTIES	SYMBOL ISO-L
HYDRAULIC SYSTEMS	HYDROSTATIC APPLICATIONS	(STD HYDRAULIC APPLICATIONS)	NON-INHIBITED REFINED MINERAL OILS	HH
			REFINED MINERAL OILS WITH IMPROVED ANTI-RUST AND ANTI-OXIDATION PROPERTIES	HL
			OILS OF HL TYPE WITH IMPROVED ANTI-WEAR PROPERTIES	HM
			OILS OF HM TYPE WITH IMPROVED VISCOSITY/ TEMPERATURE PROPERTIES	HV
		APPLICATIONS WHERE ENVIRONMENTALLY ACCEPTABLE FLUIDS ARE REQUESTED	TRIGLYCERIDES	HETG
			POLYGLYCOLS	HEPG
			SYNTHETIC ESTERS	HEES
			POLYALPAOELEFIN AND RELATED HYDROCARBON PRODUCTS	HEPR
		HYDRAULIC SLIDE-WAY SYSTEMS	OILS OF HM TYPE WITH ANTI-STICK/SLIP PROPERTIES	HG
			OILS IN WATER EMULSION	HFAE
			CHEMICAL SOLUTION IN WATER	HFAS
			WATER IN OIL EMULSION	HFB
			WATER POLYMER SOULTIONS	HFC
			SYNTHETIC FLUIDS CONTAINING NO WATER AND CONSISTING OF PHOSPHATE ESTERS	HFDR
			SYNTHETIC FLUIDS CONTAINING NO WATER AND OF OTHER COMPOSITION	HFDU

XXX	GENERALLY GOOD COMPATIBILITY WITH HOSES, ANYWAY THE BEHAVIOUR OF THE PARTICULAR OIL FORMATION TO BE VERIFIED CASE BY CASE
HFAS & HFDR	NO COMPATIBILITY WITH MANULI HYDRAULICS HOSES. DEDICATED HOSES ARE REQUESTED

NOTE: *ATF OILS ARE NOT CLASSIFIED AS HYDRAULIC OILS*

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manuli® HYDRAULICS

PART 1: HYDROSTATIC APPLICATION OILS COMPATIBILITY CHART

(ACTUAL HYDRAULIC SYSTEMS AND APPLICATIONS)

HYDRAULIC FLUID	TYPE		WIRE SPIRAL	WIRE BRAID				TEXTILE BRAID	TPE TEXTILE BRAID
	ISO 6743-4	DIN 51524	ROCKMASTER GOLDENISO SHIELDMASTER ANACONDA FOREMASTER CRYOFLEX DIAMONDSPIR XTRAFLOW/4WS HYDROROPE HERCULES	TWINPOWER/ PLUS	ROCKMASTER HARVESTER/17 SHIELDMASTER GOLDENISO COVER CRYOFLEX TWINPOWER/4000 TWINPOWER/5000	FOREMASTER GOLDENISO/PILOT ROCKMASTER/1SC SYNERGY INFINITY	EQUATOR XTRAFLOW/HT	ASTRO SPIRTEX MULTITEX PUSHFIT	THERMO-PLASTIC HOSE (TPE TUBE)
ACT ECOSAFE FR 46	HFDU		E	E	FT	G	FT	G	-
ACT FR WG 200 D	HFC		E	X	E	-	X	E	-
ADDINOL ÖKOSYNTH SUPER HEES 46	HEES		G	FT	G	G	FT	G	-
ADDINOL ÖKOSYNTH SUPER HEES 46 S	HEES		G	FT	G	G	FT	G	-
AFTON HI-030728-40-02	HM		G	G	G	G	G	G	-
AGIP ARNICA 46	HV	HVLP	E	G	G	G	E	G	-
AGIP ARNICA EXTRA PLUS	HEES	HVLP	G	G	G	G	FT	G	E
AGIP ARNICA PLUS	HEES	HVLP	E	E	G	G	FT	E	E
AGIP ARNICA S46	HFDU		E	E	G	G	FT	E	E
AGIP LHM SUPER	HV		G	G	G	G	G	G	G
AGIP OSO 32	HM	HLP	E	E	G	G	E	E	G
AGIP OSO 46 S	HM	HLP	E	G	G	G	G	G	G
AGIP OSO D 46	HM	HLPD	G	G	G	E	G	G	-
AGROL MENDO 46	HEES		G	FT	G	G	FT	-	-
AKZO FYRQUEL	HFDR		X	X	X	X	-	X	-
AMBRA HITECH 46	HL	HLP	E	E	G	G	G	E	G
ANDEROL 8768 (PAO)	HEPR		G	G	FT	FT	FT	G	-
API HS 46	HV	HVLP	E	G	G	G	E	-	-
ARAL VITAM DF TOP 46	HV	HVLPD	E	E	G	G	G	G	G
ARAL VITAM EHF 46	HEES		E	E	G	G	G	G	G
ARAL VITAM GF 68	HL	HLP	E	E	E	G	E	E	E
AVIA AVILUB HLP 546	HM	HVLP	G	G	G	G	E	G	-
AVIA AVILUB SF 568	HM	HLP	-	-	-	-	G	-	-
AVIA BIOFLUID BP 32	HEES		G	FT	G	E	X	G	-
AVIA FLUID RSL 32	HS		E	G	G	G	-	-	-
AVIA FLUID RSL 68	HM	HLP	G	G	G	G	E	G	-
AVIA HVI 46	HV	HVLPD	G	G	G	G	E	G	-
AVIA PB FLUID HV 40	HV	HVLP	G	G	G	G	G	G	-
AVIA SYNTOFLUID F 46	HEES		E	G	E	G	G	G	E
AVIA SYNTOFLUID N 32	HEES		G	G	E	G	G	E	G
AVIA SYNTOFLUID N 46	HEES		E	E	G	G	G	E	G
AVIA SYNTOFLUID PE B 30 (PAO)	HEPR		E	G	G	G	G	G	G
AVIA SYNTOFLUID PE B 50 (PAO)	HEPR		E	E	G	G	G	G	-
BECHEM HYDROSTAR PM 46	HH		E	E	G	-	G	E	-

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FLUID COMPATIBILITY CHART

HYDRAULIC FLUID	TYPE		WIRE SPIRAL	WIRE BRAID				TEXTILE BRAID	TPE TEXTILE BRAID
	ISO 6743-4	DIN 51524	ROCKMASTER GOLDENISO SHIELDMASTER ANACONDA FOREMASTER CRYOFLEX DIAMONDSPIR XTRAFLOW/4WS HYDROROPE HERCULES	TWINPOWER/ PLUS	ROCKMASTER HARVESTER/17 SHIELDMASTER GOLDENISO COVER CRYOFLEX TWINPOWER/4000 TWINPOWER/5000	FOREMASTER GOLDENISO/PILOT ROCKMASTER/1SC SYNERGY INFINITY	EQUATOR XTRAFLOW/HT	ASTRO SPIRTEX MULTITEX PUSHFIT	THERMO-PLASTIC HOSE (TPE TUBE)
BINOL HYDRA P 1146	HETG		E	E	G	G	-	G	-
BP A 0629L/028	HS		G	FT	G	G	E	G	G
BP BARTRAN HV	HV	HVLP	E	G	G	G	E	G	-
BP BIOHYD SE-S 46	HEES		G	G	E	G	FT	E	-
BP ENERGOL HLP 46	HL	HLP	G	G	G	-	-	-	-
BREMER & LEGUIL RIVOLTA SBH 11	HEES		G	FT	E	G	X	G	G
BREMER & LEGUIL RIVOLTA SBH 23	HEES		E	G	E	G	G	G	E
BRUGAROLAS 98096 BESLUX H 540	HV	HVLP	G	G	G	G	FT	G	-
CALTEX RANDO DSZ 46	HV	HVLP	G	G	FT	G	G	FT	-
CALTEX RANDO HD	HM	HLP	E	G	G	G	G	G	G
CALTEX RANDO HD LVZ 46	HV	HVLP	G	G	G	G	G	FT	-
CALTEX VOLVO GEN D/E (CG-4) 15W40	HM	HLP	G	G	G	G	G	G	-
CASTROL AERO HF 585 B (MIL 56006H)	HH	HL	E	FT	G	-	FT	E	FT
CASTROL ANVOL SWX 68 (POE BASED)	HFDU		E	FT	E	-	FT	G	-
CASTROL BIOBAR VG 68	HEES		E	FT	E	E	X	G	-
CASTROL BIOTECH ALPIN 22	HETG		E	E	E	-	FT	E	-
CASTROL BRAYCO 717 (MIL 17111C)	HS		G	FT	G	-	FT	G	G
CASTROL BRAYCO MICRONIC 882	HH	HL	G	G	G	G	G	G	G
CASTROL CARELUBE HTG	HETG		E	FT	E	E	FT	E	G
CASTROL CARELUBE HY 46	HEES		G	G	G	G	FT	G	G
CASTROL HYSPIN HDH 7000	HM		E	G	G	-	E	E	-
CASTROL HYSPIN HLPD 46	HM	HLP	-	E	G	G	G	G	G
CASTROL HYSPIN HVI 46 D	HV	HLPD	E	G	G	G	G	G	G
CASTROL HYSPIN ZZ32	HM	HLP	G	G	G	G	E	G	G
CASTROL ILOCUT 546 MP	HM		-	G	G	G	E	G	-
CASTROL LIFT OIL	HH	HL	G	G	G	G	G	G	G
CASTROL PERFORMANCE BIO HE 46	HEES		G	FT	G	G	FT	G	-
CASTROL PRODUCT L 320	HH	HL	E	G	G	-	X	G	-
CASTROL PRODUCT L 571	HH	HL	E	G	G	G	X	G	-
CASTROL TRIBOL HM 943-46	HM		G	G	G	G	G	-	-
CAT HYDO ADVANCE 10	HM		E	E	G	G	G	-	-
CENEX INDOL PREMIUM AW 4646	HM	HLP	G	E	G	G	-	G	-
CEPSA HYDRAULICO HM 46	HM	HLP	E	E	G	-	E	G	E
CHEVRON ETL 10328	HV	HVLP	G	E	G	G	G	G	-
CHEVRON EXTRA HYD OIL VG 46	HM		G	G	G	G	FT	-	-
CHEVRON HYDRAULIC AW 46	HM	HLP	E	G	G	G	E	G	-
CHEVRON HYDREX AW	HM	HLP	E	G	G	G	E	G	-
CHEVRON MACHINE OIL AW ISO 46	HV	HLP	G	G	G	G	G	G	G

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FLUID COMPATIBILITY CHART

manuli® HYDRAULICS

HYDRAULIC FLUID	TYPE		WIRE SPIRAL	WIRE BRAID				TEXTILE BRAID	TPE TEXTILE BRAID
	ISO 6743-4	DIN 51524	ROCKMASTER GOLDENISO SHIELDMASTER ANACONDA FOREMASTER CRYOFLEX DIAMONDSPIR XTRAFLOW/4WS HYDROROPE HERCULES	TWINPOWER/ PLUS	ROCKMASTER HARVESTER/17 SHIELDMASTER GOLDENISO COVER CRYOFLEX TWINPOWER/4000 TWINPOWER/5000	FOREMASTER GOLDENISO/PILOT ROCKMASTER/1SC SYNERGY INFINITY	EQUATOR XTRAFLOW/HT	ASTRO SPIRTEX MULTITEX PUSHFIT	THERMO-PLASTIC HOSE (TPE TUBE)
CHEVRON RANDO HD 68	HM	HLP	G	G	G	G	G	G	-
CHEVRON RYCON MV	HM		E	G	G	G	G	G	-
COAST OIL A/W 68	HM		G	G	G	-	G	-	-
CONDAT D 46	HFDU		E	FT	G	-	FT	G	-
CONOCO PHILLIPS ECOTERRA 46	HM	HLP	G	G	FT	FT	G	-	-
DEA ECONA E 46	HEES		G	FT	E	G	FT	E	E
DOMUS FLUID 46	HEES		G	G	G	G	-	G	G
DOT 3	HPG		-	-	X	X	X	X	G
DOT 4	HPG		-	-	X	X	X	X	G
ELAN HYDRAULIC 46	HV	HVLP	E	G	G	G	E	G	G
ESSO HYDRAULIKOEL HE 46	HEES		E	E	E	G	G	E	E
ESSO NUTO H46	HM	HLP	G	G	G	G	E	G	E
EUROLUB HLP 46	HM		G	G	FT	G	G	-	-
EXXON HUMBLE H 46	HM	HLP	E	G	G	G	E	G	-
EXXON RL 002775B	HM		G	G	G	G	FT	-	-
EXXON UNIVIS N46	HV	HVLP	E	G	G	G	E	G	-
FINKE AVIATICON HY HE	HEES		G	G	E	-	-	E	G
FRAGOL HE 46	HEES		E	FT	G	-	FT	G	E
FUCHS AQUACENT LT 68	HFB		G	FT	G	G	FT	G	-
FUCHS ECO HYD 46S NWG	HEES		G	FT	G	-	X	G	-
FUCHS OM 13	HH	HL	G	G	G	-	G	E	E
FUCHS OM 65	HH	HL	G	G	G	-	-	G	G
FUCHS PLANTOHYD S 46	HEES		E	FT	E	G	FT	E	E
FUCHS PLANTOHYD N 46	HETG		G	FT	E	G	FT	E	E
FUCHS PLANTOHYD SUPER S 46	HEES		G	X	E	G	X	-	-
FUCHS PLANTOSYN 3268 ECO	HEES		G	FT	E	G	G	E	G
FUCHS PLANTOSYN 46 HVI	HEES		E	FT	G	-	FT	G	G
FUCHS RENOLIN B 46 HVI	HV	HVLP	E	G	G	G	E	G	G
FUCHS RENOLIN B15 VG46	HM	HLP	G	G	G	-	-	-	-
FUCHS RENOLIN D15 VG 46	HM	HLPD	E	G	G	G	-	G	-
FUCHS RENOLIN MINE AW 68	HM		G	G	FT	G	-	-	G
FUCHS RENOLIN MR 520	HV	HVLPD	G	G	G	G	G	E	E
FUCHS RENOLIN XTREME TEMP 46	HV	HVLP	G	G	G	G	G	G	G
FUCHS RENOLIN XTREME TEMP 68	HV	HVLP	G	G	G	G	G	G	G
FUCHS SOLCENIC	HFA		G	-	G	G	X	G	-
FUCHS TITAN H 46	HV	HVLP	G	G	G	G	G	G	G
FUCHS TITAN HV 68	HV	HVLP	G	G	G	G	G	G	G
GULF ARMONY AW 46	HM	HLP	E	E	G	G	E	G	E

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FLUID COMPATIBILITY CHART

manuli® HYDRAULICS

HYDRAULIC FLUID	TYPE		WIRE SPIRAL	WIRE BRAID				TEXTILE BRAID	TPE TEXTILE BRAID
	ISO 6743-4	DIN 51524	ROCKMASTER GOLDENISO SHIELDMASTER ANACONDA FOREMASTER CRYOFLEX DIAMONDSPIR XTRAFLOW/4WS HYDROROPE HERCULES	TWINPOWER/ PLUS	ROCKMASTER HARVESTER/17 SHIELDMASTER GOLDENISO COVER CRYOFLEX TWINPOWER/4000 TWINPOWER/5000	FOREMASTER GOLDENISO/PILOT ROCKMASTER/1SC SYNERGY INFINITY	EQUATOR XTRAFLOW/HT	ASTRO SPIRTEX MULTITEX PUSHFIT	THERMO-PLASTIC HOSE (TPE TUBE)
HOUGHTON COSMOLUBRIC HF 130 (POE BASED)	HFDU		G	G	G	-	FT	G	-
HOUGHTON HYDRAVIS BC 84005 (60°C)	HFA		E	G	E	G	FT	E	E
HOUGHTON ISOCORE E 68 PLUS	HFC		E	G	E	-	FT	G	-
HOUGHTON SAFE 620	HFA		G	G	G	-	X	-	-
HOUGHTON SAFE OX 40	HFC		E	G	E	G	FT	E	E
HOUGHTON VITAL FLUID L46AL	HFDU		G	G	E	G	FT	-	-
HOUGHTON-SAFE 273 CTF	HFC		E	FT	E	G	X	E	E
IDEMITSU DAPHNE 46	HH	HL	G	G	G	G	G	G	-
IDEMITSU SUPER HYDRO 28XT-B	HM	HLP	E	E	G	G	E	G	G
IGOL SONHYDRO ZNS 46	HM	HLP	G	G	G	G	E	G	-
IGOL MARINE FLUID 46	HV	HVLP	G	G	G	G	G	-	-
IGOL MATIC ZNS 46	HV	HVLP	G	FT	G	G	FT	G	-
IGOL TICMA FLUID	HV		E	G	G	-	E	G	-
IGOL TICMA FLUID BIO 46	HEES		G	G	G	-	FT	G	-
IRVING HYDRAULICS 46	HM	HLP	G	G	G	-	E	G	-
JCB OPTIMUM PERFORMANCE HYD OIL 46	HV	HVLP	G	E	G	G	G	G	G
JIANGSU GAOKE L-HM32	HM	HLP	-	-	G	-	E	-	-
JOHN DEERE BIO GUARD II	HETG		E	E	E	G	E	G	G
KENDALL HYKEN GLACIAL BLUE HYD FLUID	HV		G	FT	G	G	FT	G	G
KLUBER KLUBERBIO LR 9 68	HEES		E	FT	G	G	X	G	-
KLUBERFOOD 4 NH1 46	HM	HLP	G	FT	FT	-	FT	FT	-
KOMATSU GENUINE BIO 46 G4	HEES		E	G	G	G	G	G	E
KOMATSU KPO 10 POWERTRAIN TO 10	HM		E	E	G	E	G	G	E
KUNLUN LHM 46	HM	HLP	E	G	G	G	E	G	G
LIEBHERR HYD BASIC 68	HM	HLPD	E	G	G	-	-	-	-
LIEBHERR HYDRAULIC 37	HV	HVLP	E	G	G	G	-	G	-
LIEBHERR HYDRAULIC HVI	HV	HVLPD	E	G	G	G	-	G	-
LIEBHERR HYDRAULIC PLUS	HEPR	HVLPD	G	G	G	G	-	-	-
LIEBHERR HYDRAULIC PLUS ARCTIC	HEPR	HVLPD	E	E	G	-	-	-	-
LUKOIL GEYSER ST	HM		E	G	G	G	E	G	G
LUKOIL GEYSER ZF		HLP	G	G	G	G	E	G	G
MACDERMID OCEANIC BTC 181	HS		E	G	G	G	-	G	G
MAV SINT PLUS 2005 ISO46 (PAO+TRADITIONAL SDDITIVE)	HEPR		G	G	FT	G	FT	G	-
METLUBE HFR 220	HFDU		G	G	G	G	E	FT	-
MICRO QUIMICA MICROCORTE 530	HFB		FT	X	FT	-	X	FT	-
MILLERS MILLFOOD 32	HS		G	G	G	-	E	G	E
MILLERS MILLMAX 22	HM		E	G	G	G	G	G	-
MOBIL AERO HF 46 (MIL 5606H)	HH	HL	E	G	G	-	FT	G	-

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MOBIL DTE 10 EXCEL 15	HV	HVLP	E	G	G	G	G	G	-
MOBIL DTE 10 EXCEL 46	HV	HVLP	E	E	G	G	FT	G	-
MOBIL DTE 10 EXCEL 68	HV	HVLP	E	G	G	G	FT	G	-
MOBIL DTE 13	HV	HVLP	E	G	G	-	E	G	-
MOBIL DTE 24	HV	HVLP	G	G	G	G	E	G	-
MOBIL DTE 25	HV	HVLP	E	G	G	G	E	G	E
MOBIL DTE 25 ULTRA	HV	HVLP	G	E	G	E	G	G	G
MOBIL DTE 26	HV	HVLP	G	G	G	-	E	FT	E
MOBIL DTE EXCEL 46	HM	HLP	E	E	G	G	E	G	G
MOBIL DTE EXCEL 68	HM	HLP	G	-	G	G	E	-	-
MOBIL DTE FM 32	HM		E	G	G	-	G	G	-
MOBIL EAL 224 H	HETG		G	G	E	G	-	E	G
MOBIL HYDROFLUID HFDU	HFDU		E	E	E	E	G	E	E
MOBIL SHC 524	HM		E	G	G	G	E	-	-
MOBIL SHC CIBUS 46	HV	HVLP	G	G	G	G	G	G	-
MOBIL UNIVIS N 46	HV	HVLP	E	G	G	G	G	G	G
MORRIS TRIAD 32	HM		-	G	G	G	G	-	-
MOTOREX ALPINE COREX POLAR S370	HV	HVLP	G	G	G	G	G	G	-
MOTOREX COREX HV 22	HM		E	G	G	G	E	G	G
MOTOREX COREX HV 46	HM		G	E	G	G	G	-	-
MOTOREX COREX HW	HV	HVLP	E	G	G	E	E	E	G
MOTOREX OEKOSYNTH HEES 46	HEES		G	X	G	G	X	G	-
MOTUL SHOCK OIL VI 400	HEES		G	FT	G	G	X	G	-
NALCO VARIDOS FSK 40%	HFB		E	G	E	E	FT	E	-
NESTE BIO HYDRAULI LONGLIFE 46	HEES		G	FT	G	G	FT	G	-
NESTE BIO HYDRAULI SE 46	HEES		G	FT	G	G	FT	G	-
NESTE BIO HYDRAULI SE 46 PLUS	HEES		E	G	E	E	FT	G	G
NESTE HYDRAULI 32 SUPER	HV	HVLP	E	G	G	G	E	-	-
NESTE HYDRAULI 46 LL	HV	HVLP	E	G	G	G	G	G	-
NESTE HYDRAULI 46 SUPER	HV	HVLP	E	G	G	G	E	-	-
NESTE HYDRAULI 68 SUPER	HV	HVLP	G	E	G	G	E	G	E
NEW PROCESS AG NP HYD OIL PC HVI 46	HV	HVLP	-	FT	FT	G	G	-	-
NOALOIL IDRO 32		HLP	E	G	G	-	E	G	G
NYCO HYDRAUNIC OIL FH 3 (MIL H 46170 C-1)	HH	HL	E	G	G	G	E	G	-
NYCO HYDRAUNIC OIL FH 51 (MIL 5606H)	HH	HL	E	G	G	G	FT	G	-
NYCO HYDRAUNIC OIL FH 6 (MIL 6083H)	HH	HL	G	G	E	-	FT	E	FT
OEST DOPP-SYNTH 60	HV	HLP	G	X	FT	FT	X	G	-
OEST DOPP-SYNTH 70	HV	HLP	G	X	FT	-	X	G	-

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FLUID COMPATIBILITY CHART

manuli® HYDRAULICS

HYDRAULIC FLUID	TYPE		WIRE SPIRAL	WIRE BRAID				TEXTILE BRAID	TPE TEXTILE BRAID
	ISO 6743-4	DIN 51524	ROCKMASTER GOLDENISO SHIELDMASTER ANACONDA FOREMASTER CRYOFLEX DIAMONDSPIR XTRAFLOW/4WS HYDROROPE HERCULES	TWINPOWER/ PLUS	ROCKMASTER HARVESTER/17 SHIELDMASTER GOLDENISO COVER CRYOFLEX TWINPOWER/4000 TWINPOWER/5000	FOREMASTER GOLDENISO/PILOT ROCKMASTER/1SC SYNERGY INFINITY	EQUATOR XTRAFLOW/HT	ASTRO SPIRTEX MULTITEX PUSHFIT	THERMO-PLASTIC HOSE (TPE TUBE)
OMD 90	HH	HL	G	G	G	-	-	G	G
OMV BIOHYD MS 46 (100°C)	HEES		G	G	G	G	-	G	G
OMV HLP AL 46	HL	HLP	E	G	FT	-	E	FT	-
OMV HLP M32	HV	HVLP	G	G	G	E	-	G	-
OMV HYD HLP M15	HV	HVLP	E	FT	G	G	-	G	-
PANOLIN GRO SYNTH 46	HEES		G	FT	G	G	FT	-	E
PANOLIN HLP SYNTH 15	HEES		G	X	X	X	X	G	-
PANOLIN HLP SYNTH 32	HEES		G	X	FT	FT	X	G	-
PANOLIN HLP SYNTH 46	HEES		E	FT	G	G	X	G	G
PANOLIN HLP SYNTH E 46	HEES		E	FT	G	G	X	G	E
PANOLIN HLP UNI 46	HV	HVLP	E	G	G	G	G	G	-
PANOLIN ORCON HYD 46	HV	HVLP	G	G	G	G	G	G	-
PANOLIN TRAFOSYNTH 2	HEES		G	X	G	-	X	G	-
PENTOSIN CHF 11 S (POWER STEERING)	HS		E	G	G	G	E	G	-
PETROCANADA ENVIRON AW		HLP	E	G	G	G	G	G	G
PETRO CANADA HYDREX AW 46	HM	HLP	E	G	G	G	FT	FT	-
PETRO CANADA HYDREX MV 60	HV	HVLP	E	E	G	G	FT	G	-
PETROCANADA HYDREX XV	HV	HVLP	G	G	FT	G	FT	-	-
PETROCANADA SYNTHETIC AW 46	HM	HLP	G	G	FT	G	G	-	-
PETROFER ULTRA SAFE 620	HFC		G	G	E	G	X	E	-
PFINDER APRESOL	HH		G	G	G	-	E	G	E
PONSSE LOGGER'S HYDRAULIC OIL 46 SUPER	HM	HLP	E	G	G	E	G	-	-
PRESTONE POWER STEERING FLUID	HM		-	-	-	-	E	G	-
Q8 HANDEL 46	HV	HVLP	E	G	G	E	G	E	-
Q8 HANDEL 68	HV	HVLP	G	G	G	-	E	G	E
Q8 HAYDN 32	HM	HLP	E	G	G	G	E	G	-
Q8 HAYDN 46	HM	HLP	E	G	G	E	G	-	-
Q8 HELLER 46	HV	HVLP	E	G	G	-	E	G	-
Q8 HINDEMITH LT	HV	HVLP	G	FT	G	G	FT	G	-
Q8 HOGARTH 46	HV	HVLP	G	G	G	G	G	G	-
Q8 HOLBEIN ECO 46	HV	HVLP	E	G	E	E	G	G	-
Q8 HOLBEIN NWG 32	HEES		G	FT	G	-	X	G	-
Q8 HUMMEL 46	HM	HLP	E	E	G	-	G	-	-
QUAKER QUINTOLUBRIC 888	HFDU		G	G	G	G	FT	G	-
QUAKER QUINTOLUBRIC 888-46	HFDU		G	FT	G	G	FT	-	-
QUAKER QUINTOLUBRIC 888-68	HFDU		G	FT	G	-	FT	-	-
QUAKER QUINTOLUBRIC 914	HFA		G	-	G	G	-	G	-
QUAKER QUINTOLUBRIC N 822-300	HFDU		G	FT	G	-	-	G	-

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FLUID COMPATIBILITY CHART

manuli® HYDRAULICS

HYDRAULIC FLUID	TYPE		WIRE SPIRAL	WIRE BRAID				TEXTILE BRAID	TPE TEXTILE BRAID
	ISO 6743-4	DIN 51524	ROCKMASTER GOLDENISO SHIELDMASTER ANACONDA FOREMASTER CRYOFLEX DIAMONDSPIR XTRAFLOW/4WS HYDROROPE HERCULES	TWINPOWER/ PLUS	ROCKMASTER HARVESTER/17 SHIELDMASTER GOLDENISO COVER CRYOFLEX TWINPOWER/4000 TWINPOWER/5000	FOREMASTER GOLDENISO/PILOT ROCKMASTER/1SC SYNERGY INFINITY	EQUATOR XTRAFLOW/HT	ASTRO SPIRTEX MULTITEX PUSHFIT	THERMO-PLASTIC HOSE (TPE TUBE)
QUAKER QUINTOLUBRIC N 852	HEES		G	X	G	G	X	E	-
REPSOL HIDRAULICO SC 46	HM	HLP	G	G	G	G	G	G	G
REPSOL HIDROLEO 46	HV	HVLP	G	G	G	G	G	G	-
REPSOL TELEX 32	HM	HLP	G	E	G	E	G	G	G
REPSOL TELEX HVLP 46	HV	HVLP	G	G	G	G	G	G	G
ROLOIL ESTIN S46	HFDU		G	FT	G	G	X	G	-
ROSNEFT GIDROTECH HVLP 46	HV	HVLP	E	G	G	G	G	G	G
SAFETY KLEEN PERFORMANCE PLUS AW 32	HM		G	G	FT	G	G	-	-
SHAEFFER 112 HTC	HM	HLP	G	G	G	G	E	-	-
SHAEFFER 112 NZ HTC 32	HM	HLPD	G	G	FT	G	G	FT	-
SHAEFFER 254 SUPREME ISO 32 TH 220	HM	HLP	G	FT	FT	G	G	FT	-
SHAEFFER 275 S DILEX SUPREME MEHF HYD	HV	HLPD	G	E	G	E	E	FT	-
SHELL AEROSHELL FLUID 41 (MIL 5606H)	HH	HL	E	G	G	-	FT	G	-
SHELL AEROSHELL FLUID 602 (MIL-PRF 87252C)	HEPR		E	E	G	G	E	G	G
SHELL ASTRON HL 46	HH		E	E	G	G	G	-	-
SHELL HYDRAULIC OIL PW 46	HV	HVLP	E	G	G	E	G	G	G
SHELL IRUS FLUID DU-NA 46	HFDU		E	E	E	-	G	G	-
SHELL IRUS FLUID DU-NA 68	HFDU		E	E	E	-	G	G	-
SHELL MORLINA 220	HL	HLP	G	G	G	G	E	FT	G
SHELL MORLINA S2 BL10	HL	HLP	G	X	G	G	X	G	G
SHELL MORLINA S2 BL5	HL	HLP	G	X	G	G	X	G	G
SHELL NATURELLE HF-E15	HEES		E	FT	G	G	X	G	G
SHELL NATURELLE HF-E46	HEES		E	FT	G	G	X	E	G
SHELL PMO S3 M 220	HM		G	G	G	G	G	G	-
SHELL TARGON AL PLUS	HH		E	FT	E	-	FT	G	-
SHELL TELLUS S1 M 46 (EX TELLUS H 46)	HM		G	G	G	G	-	-	-
SHELL TELLUS S2 M 100 (EX TELLUS 100)	HM		E	G	G	G	G	G	G
SHELL TELLUS S2 M 46 (EX TELLUS 46)	HM	HLP	E	G	G	G	E	G	E
SHELL TELLUS S2 M 68 (EX TELLUS 68)	HM	HLP	E	G	G	G	E	G	-
SHELL TELLUS S2 MA 46	HM	HVLP	E	G	G	E	G	G	-
SHELL TELLUS S2 MX 46	HM	HLP	G	G	G	G	G	G	G
SHELL TELLUS S2 V 32 (EX TELLUS T 32)	HV	HVLP	E	G	G	E	E	G	G
SHELL TELLUS S2 V 46 (EX TELLUS T 46)	HV	HVLP	E	G	G	E	E	G	G
SHELL TELLUS S2 V 68 (EX TELLUS T 68)	HV	HVLP	E	G	G	-	E	G	-
SHELL TELLUS S2 VX 46	HV	HVLP	G	G	G	G	G	G	G
SHELL TELLUS S3 M 46 (EX TELLUS S 46)	HM		E	G	G	G	G	G	G
SHELL TELLUS S3 V 32 (EX TELLUS STX)	HV	HVLP	E	G	FT	G	E	G	G
SHELL TELLUS S3 V 46 (EX TELLUS STX)	HV	HVLP	E	G	FT	G	E	G	G

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FLUID COMPATIBILITY CHART

HYDRAULIC FLUID	TYPE		WIRE SPIRAL	WIRE BRAID				TEXTILE BRAID	TPE TEXTILE BRAID
	ISO 6743-4	DIN 51524	ROCKMASTER GOLDENISO SHIELDMASTER ANACONDA FOREMASTER CRYOFLEX DIAMONDSPIR XTRAFLOW/4WS HYDROROPE HERCULES	TWINPOWER/ PLUS	ROCKMASTER HARVESTER/17 SHIELDMASTER GOLDENISO COVER CRYOFLEX TWINPOWER/4000 TWINPOWER/5000	FOREMASTER GOLDENISO/PILOT ROCKMASTER/1SC SYNERGY INFINITY	EQUATOR XTRAFLOW/HT	ASTRO SPIRTEX MULTITEX PUSHFIT	THERMO-PLASTIC HOSE (TPE TUBE)
SHELL TELLUS S4 ME 46 (EX TELLUS EE 46)	HM	HLP	E	FT	-	-	-	-	-
SHELL TELLUS S4 VE 46	HV	HVLP	G	G	FT	G	FT	G	-
SHELL TELLUS S4 VX 32 (EX TELLUS ARCTIC 32)	HV	HVLP	G	G	G	G	G	G	E
SHELL TELLUS TX 68	HV		G	FT	G	E	G	G	-
SHENYANG TELI AERONAUTIC HYDRAULIC OIL 10#	HV		G	-	G	G	FT	-	-
SINCLAIR AW 46	HM		G	G	G	G	G	G	-
SINENG LHM 46	HM		G	G	-	-	-	-	-
SINOPEC L HM 32	HM	HLP	E	-	G	-	G	-	-
SMALLMAN CROWNPRESS 46	HH		G	G	G	-	E	G	E
SOLUTIA SKYDROLL 500	HFDR		X	X	X	X	X	X	X
STATOIL HYDRAWAY EXTREME 46	HM	HLP	E	G	G	E	E	-	-
STATOIL HYDRAWAY HVXA 15	HV	HVLP	G	-	G	G	-	G	-
STATOIL HYDRAWAY HVXA 46 HP	HV	HVLP	E	G	G	G	E	G	-
STATOIL HYDROCOR CC44	HFC		E	G	E	E	FT	G	-
STUART ISOCORE E 68 PLUS	HPG		E	G	G	G	FT	E	-
SUN GROWN RAPE SEEDS OIL	HETG		E	FT	E	E	G	E	-
SUNOCO SUNVIS 746	HM	HLP	E	G	G	G	E	FT	G
SUNOCO SUNVIS 846	HV	HVLP	E	G	G	G	G	G	G
SUNOCO SUNVIS 846 WR	HV	HLP	E	G	G	G	G	G	G
TAMOIL GREEN HYDRO SAFETY 46	HETG		E	E	G	-	-	E	G
TEBOIL HYDRAULIC ARCTIC	HH		G	G	E	G	G	E	E
TEBOIL ECO 46	HEES		E	E	G	G	FT	G	G
TERRESOLVE GREENSCARE 46	HETG		G	G	G	G	G	G	-
TEXACO BIOSTAR HYDRAULIC 32	HETG		E	FT	E	G	FT	E	-
TEXACO HYDRA 46	HEES		E	FT	G	G	FT	G	G
TEXACO RANDO HD 46	HM	HLP	E	G	G	G	G	FT	G
TEXACO RANDO HD LVZ 46	HV	HVLP	G	G	G	G	G	FT	-
TEXACO RANDO HD VZ 46	HV	HVLP	G	G	G	G	G	G	G
TEXACO RANDO HD VZ 68	HV	HVLP	G	G	G	G	G	G	-
TEXACO RANDO HD Z 46	HV	HVLP	E	G	G	G	G	G	-
TEXACO RANDO HD Z LT 32	HM	HVLP	G	G	G	G	G	G	G
TEXACO RANDO WM 32	HV	HVLP	G	FT	G	G	-	G	-
TEXACO SYNSTAR HT 68	HFDU		G	G	E	G	FT	E	G
TOTAL AZOLLA HZS 46	HM	HLP	E	G	G	G	E	-	-
TOTAL AZOLLA ZS 46	HM	HLP	E	G	G	G	E	G	G
TOTAL BIOHYDRAN SE 46	HEES		G	FT	G	G	X	E	G
TOTAL EQUIVIS ZS 46	HV	HVLP	G	G	G	-	-	FT	-
TOTAL HYDRANSAFE HFDU 46	HFDU		E	-	G	-	-	-	-

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FLUID COMPATIBILITY CHART

HYDRAULIC FLUID	TYPE		WIRE SPIRAL	WIRE BRAID				TEXTILE BRAID	TPE TEXTILE BRAID
	ISO 6743-4	DIN 51524	ROCKMASTER GOLDENISO SHIELDMASTER ANACONDA FOREMASTER CRYOFLEX DIAMONDSPIR XTRAFLOW/4WS HYDROROPE HERCULES	TWINPOWER/ PLUS	ROCKMASTER HARVESTER/17 SHIELDMASTER GOLDENISO COVER CRYOFLEX TWINPOWER/4000 TWINPOWER/5000	FOREMASTER GOLDENISO/PILOT ROCKMASTER/1SC SYNERGY INFINITY	EQUATOR XTRAFLOW/HT	ASTRO SPIRTEX MULTITEX PUSHFIT	THERMO-PLASTIC HOSE (TPE TUBE)
TOTAL LHM (BRAKE FLUID)	HS		G	X	FT	FT	X	G	-
UKABIOL HY 46 HTG	HETG		G	G	E	G	G	E	G
UNIL HFS 46 NAS 6	HM	HLP	G	G	G	G	E	-	-
UNIL HYDRO S46	HM	HLP	G	G	G	G	E	FT	G
UNIL OPAL HV 46	HV	HVLP	G	G	G	G	E	-	-
UNIL OPAL HVB 46	HV	HLPD	G	G	G	G	E	-	-
UNIL OPAL HVC 46	HV	HVLP	E	G	G	G	G	-	-
UNIL OPAL PO 6	HV	HVLP	E	G	G	G	G	G	G
UNIL UNIHYD ISO WG 46	HV	HLPD	E	G	G	G	E	G	G
VALVOLINE ULTRAMAX HVLP 68	HV	HVLP	G	E	G	G	E	-	-
WARREN OIL SERVICE PRO PREMIUM AW	HM		G	G	FT	FT	G	-	-
VICKERS ECOSURE HSE 68	HEES		G	FT	G	G	X	FT	-
WISURA WM 3021 2,8% IN H2O	HFA		E	E	E	-	X	E	E
WURTH TRIATHLON HLP 46	HM	HLP	E	G	FT	G	-	-	-
YORK 777	HEES		G	FT	G	G	X	G	E
ZELLER+GMELIN DIVINOL DHG 46	HL	HLP	E	G	G	G	E	G	G
ZELLER+GMELIN DIVINOL HE 46	HEES		E	FT	G	E	-	G	-

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manuli® HYDRAULICS

PART 2: HYDROKYNETIC APPLICATIONS AND LUBRICANT OILS COMPATIBILITY CHART

(AUTOMATIC TRANSMISSION AND VARIOUS LUBRICATION SYSTEMS)

HYDRAULIC FLUID	TYPE		WIRE SPIRAL	WIRE BRAID				TEXTILE BRAID	TPE TEXTILE BRAID
	ISO 6743-4	DIN 51524	ROCKMASTER GOLDENISO SHIELDMASTER ANACONDA FOREMASTER CRYOFLEX DIAMONDSPIR XTRAFLOW/4WS HYDROROPE HERCULES	TWINPOWER/ PLUS	ROCKMASTER HARVESTER/17 SHIELDMASTER GOLDENISO COVER CRYOFLEX TWINPOWER/4000 TWINPOWER/5000	FOREMASTER GOLDENISO/PILOT ROCKMASTER/1SC SYNERGY INFINITY	EQUATOR XTRAFLOW/ HT	ASTRO SPIRTEX MULTITEX PUSHFIT	THERMO-PLASTIC HOSE (TPE TUBE)
AUTOMATIC TRANSMISSION FLUID (ATF)									
AGIP ATF 2D GEAR (ATF DEXRON II, MERCON II SPEC)	HA		G	G	FT	-	G	FT	E
AVIA FLUID ATF 86	HA		G	G	FT	G	E	G	G
BP AUTRAN MBX (ATF DEXRON IID) - 100°C	HA		E	G	G	G	E	G	-
CASTROL TRANSYND RD (ATF ALLISON C4)	HA		G	G	G	G	E	-	E
CHEVRON DRIVETRAIN HD (ATF CATERPILLAR TO4)	HA		G	G	FT	G	G	FT	-
CHEVRON HAVOLINE FULL SYNTH. MULTI VEHICLE ATF (ATF DEXRON VI)	HA		G	G	G	G	G	G	-
CONOCO PHILLIPS POWERDRIVE 10W	HA		G	FT	-	G	G	-	-
CONOCO PHILLIPS VERSATRANS LV ATF	HA		-	G	FT	G	FT	FT	-
GOLDENWEST DEXRON III M	HA		G	G	FT	G	E	-	-
MAG 1 FULLY SYNTHETIC ATF (ATF MERCON V, DEXRON III)	HA		-	G	FT	-	G	-	-
MILLERS MILLERMATIC ATF UN (ATF DEXRON II)	HA		-	FT	FT	-	G	-	-
MOBIL ATF 320	HA		G	G	FT	G	E	FT	G
PETROCANADA ATF D3M	HA		G	G	G	G	E	-	G
Q8 AUTO 15 (ATF DEXRON III)	HA		-	G	G	G	E	-	-
SHELL ATF III D (ATF DEXRON III)	HA		G	FT	FT	G	E	-	-
SHELL DONAX ATF III (ATF DEXRON III)	HA		E	G	FT	-	E	G	-
SHELL DONAX TA (TORQUE CONV. ALLISON C-3)	HM		G	-	FT	FT	E	-	-
SHELL DONAX TX (ATF DEXRON III)	HA		G	FT	FT	-	G	-	-
SHELL SPIRAX S2 ATF AX	HA		G	-	FT	-	E	-	-
SHELL SPIRAX S6 ATF ZM	HA		FT	G	X	-	FT	-	-
TAMOIL ATF II D (ATF DEXRON IID) - 100°C	HA		G	G	G	-	E	-	-
TOTAL FLUID NA H3	HA		G	G	FT	G	E	-	-
VENTRAC HYDRO TORQ XL	HA		G	G	G	G	G	-	-
GEAR (MECHANICAL TRANSMISSION) FLUID									
AMSOIL PTN 320 (GEAR OIL)	C		G	G	FT	FT	G	FT	-
CASTROL OPTIGEAR SYNTHETIC X320 (GEAR OIL)	C		G	G	FT	FT	G	FT	-
CASTROL OPTIGEAR SYNTHETIC X320 WTO (GEAR OIL)	C		-	G	-	-	G	-	-
CHEVRON MACHINE OIL AW 220	C		G	G	G	G	G	G	G
EXXON MOBIL 424 (GEAR OIL)	C		G	G	G	-	G	-	-
FUCHS PENTOGEAR 320 WT (GESR OIL)	C		G	-	G	G	E	-	-
FUCHS PLANTO HYDRAMOT SL 5W40 (STOU ENGINE OIL)	E		G	G	FT	G	G	G	-
FUCHS PLANTO HYTRAC (UTTO GEAR OIL)	C		G	FT	G	G	FT	G	-
FUCHS RENOLIN UNISYN CLP 320 (GEAR OIL)	C		G	G	G	G	E	G	-

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FLUID COMPATIBILITY CHART

manuli® HYDRAULICS

HYDRAULIC FLUID	TYPE		WIRE SPIRAL	WIRE BRAID				TEXTILE BRAID	TPE TEXTILE BRAID
	ISO 6743-4	DIN 51524	ROCKMASTER GOLDENISO SHIELDMASTER ANACONDA FOREMASTER CRYOFLEX DIAMONDSPIR XTRAFLOW/4WS HYDROROPE HERCULES	TWINPOWER/ PLUS	ROCKMASTER HARVESTER/17 SHIELDMASTER GOLDENISO COVER CRYOFLEX TWINPOWER/4000 TWINPOWER/5000	FOREMASTER GOLDENISO/PILOT ROCKMASTER/1SC SYNERGY INFINITY	EQUATOR XTRAFLOW/ HT	ASTRO SPIRTEX MULTITEX PUSHFIT	THERMO-PLASTIC HOSE (TPE TUBE)
FUCHS RENOLIN UNISYN XT 320 (GEAR OIL)	C		G	-	G	G	E	-	-
FUCHS RENOLIT CX FO 20 (GEAR GREASE)	C		E	E	E	E	G	G	G
FUCHS RENOLIT CX SPS (GEAR GREASE)	C		E	E	E	E	G	G	G
KLUBER KLUBERBIO EG 2-100 (HEES GEAR OIL)	C		G	G	G	G	-	G	-
KLUBER KLUBERBIO EG 2-68 (HEES GEAR OIL)	C		G	G	G	G	-	G	-
LIEBHERR GEAR BASIC 90 LS (GEARBOX OIL)	C		G	G	G	-	-	G	-
MOBIL MOBILGEAR SHC XMP 320 (GEAR OIL)	C		E	G	G	G	E	G	-
MOBIL SHC GEAR 320 WT (GEAR OIL)	C		E	G	G	G	E	G	-
MOBIL SHC PM 320 (GEAR OIL)	C		G	G	FT	-	E	-	-
PANOLIN EP GEAR SYNTH 30 VDT	C		G	X	G	G	X	G	G
PENZOIL LONG LIFE GEARPLUS 75W 90	C		E	G	G	E	G	G	-
SHELL DONAX TD (UTTO GEAR OIL)	C		E	G	G	G	E	-	-
SHELL OMALA HD 150 (GEAR OIL)	C		G	G	FT	-	FT	G	G
SHELL OMALA RL 320 (GEAR OIL)	C		G	G	FT	-	FT	FT	G
SHELL OMALA S5 WIND 320 (GEAR OIL)	C		G	G	FT	G	G	G	-
SHELL SPIRAX ASX (GEAR OIL SAE 80W140)	C		G	FT	FT	FT	FT	G	-
SHELL SPIRAX S4 TXM (UTTO GEAR OIL)	C		E	G	G	G	E	-	-
SHELL TEGULA V32 (GEAR OIL)	C		E	G	G	-	E	G	E
SINOPEC GREATWALL WT 320 (GEAR OIL)	C		G	G	G	G	E	G	G
TEXACO TEXTRAN TDH PREMIUM (UTTO GEAR OIL)	C		G	G	G	G	E	G	-
VALTRA TRANSMISSION OIL XT 60 (GEARBOX)	C		G	G	FT	-	E	FT	-
COMPRESSOR OILS									
ANDEROL 497 (DI-ESTER BASED COMPRESSOR OIL)	D		G	FT	G	-	FT	G	-
ATLAS COPCO HD ROTO FLUID PLUS	D		-	-	-	-	G	-	-
ATLAS COPCO PAROIL S BULK (SYNT. ESTER/POLYOLEFINE COMPR. OIL)	D		G	G	FT	-	FT	FT	-
ATLAS COPCO ROTO EXTREME DUTY FLUID	D		-	-	-	-	FT	-	-
ATLAS COPCO ROTO FOODGRADE FLUID (SYNT BLEND COMPR. OIL)	D		-	-	-	-	G	-	-
ATLAS COPCO ROTO H (MINERAL BASED COMPRESSOR OIL)	D		G	G	FT	-	G	G	E
ATLAS COPCO ROTO INJECT FLUID PLUS (MINERAL BASED COMPR. OIL)	D		G	G	FT	-	G	G	E
ATLAS COPCO ROTO INJECT FLUID (MINERAL BASED COMPR. OIL)	D		E	G	G	-	G	G	E
ATLAS COPCO ROTO RS ULTRA (MINERAL BASED COMPR. OIL)	D		-	-	-	-	G	-	-
ATLAS COPCO ROTO XTEND DUTY (PAO COMPR. OIL)	D		-	-	-	-	G	-	-
ATLAS COPCO ROTO Z	D		-	-	-	-	G	-	-
BARHAT PETROLEUM AIRLUBE XD	D		-	-	-	-	G	-	-
CASTROL ICEMATIC SW 100 (POE BASED COMPRESSOR OIL)	D		G	G	G	-	-	G	E
CHEVRON MACHINE OIL ISO 32 (COMPRESSOR OIL)	D		G	G	G	-	G	G	G
FUCHS DEA TRITON SE 55 (POE BASED)	D		G	G	G	G	-	G	E

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FLUID COMPATIBILITY CHART

manuli® HYDRAULICS

HYDRAULIC FLUID	TYPE		WIRE SPIRAL	WIRE BRAID				TEXTILE BRAID	TPE TEXTILE BRAID
	ISO 6743-4	DIN 51524	ROCKMASTER GOLDENISO SHIELDMASTER ANACONDA FOREMASTER CRYOFLEX DIAMONDSPIR XTRAFLOW/4WS HYDROROPE HERCULES	TWINPOWER/ PLUS	ROCKMASTER HARVESTER/17 SHIELDMASTER GOLDENISO COVER CRYOFLEX TWINPOWER/4000 TWINPOWER/5000	FOREMASTER GOLDENISO/PILOT ROCKMASTER/1SC SYNERGY INFINITY	EQUATOR XTRAFLOW/ HT	ASTRO SPIRTEX MULTITEX PUSHFIT	THERMO-PLASTIC HOSE (TPE TUBE)
FUCHS RENISO C85 E	D		G	FT	G	G	-	G	-
FUCHS RENISO PAG 1234	D		G	G	G	G	-	G	G
INGERSOLL RAND SSR ULTRA PLUS COOLANT (POE BASED COMPR. OIL)	D		G	G	G	-	E	G	G
INGERSOLL RAND SSR ULTRACOOLANT (POLYGLICOLE COMP. COOLANT)	D		G	G	G	G	G	G	-
INGERSOLL RAND TECHTROL GOLD (POLYGLICOLE COMP. COOLANT)	D		G	FT	G	G	G	G	-
ISAFLEX KOMPRESSOIL SE	D		-	FT	G	G	FT	-	-
KLUBER SUMMIT HYSIN F 46	D		G	G	FT	G	-	-	-
KLUBER SUMMIT HYSYN FG 46 (SYNT HYDROCARBON COMP. OIL)	D		G	G	FT	G	G	FT	-
LUBRIZOL EMKARATE RL 100S	D		G	G	-	-	-	FT	G
MOBIL ARCTIC EAL 32 (POE BASED A/C COMP. OIL)	D		-	FT	G	-	X	G	G
MOBIL GLYCOL 30 (PAG BASED COMP.OIL)	D		E	E	E	E	E	E	G
MOBIL RARUS SHC 1026 (COMPRESSOR OIL)	D		E	G	G	-	E	G	-
PAG SP 10 (COMPRESSOR OIL)	D		G	G	G	-	-	FT	E
SHELL CORENA D (COMPRESSOR OIL)	D		G	G	FT	-	E	FT	G
SULLAIR AWF	D		-	-	-	-	G	-	-
TOTAL DACNIS SH 46 (PAO BASED COMP. OIL)	D		-	G	G	G	E	G	-
TOTAL DACNIS VS 46 (MINERAL BASED COMP. OIL)	D		G	G	G	G	E	FT	-
VALVOLINE VALCOMP SYNTH 68 COMP. OIL	D		-	-	-	-	G	-	-
ENGINE OILS									
AGIP RUSTIA C (ENGINE OIL 10W20)	E		G	G	G	-	G	-	-
AGIP SINT 2000 (ENGINE OIL 10W40)	E		G	G	G	-	G	E	G
AGIP TECSINT SL5W40 (ENGINE OIL 5W40)	E		E	G	FT	-	G	-	-
ARAL TURBORAL (ENGINE OIL 15W40)	E		E	G	-	-	-	-	-
BP VANELLUS C 5 (ENGINE OIL 15W40)	E		E	G	G	G	G	-	-
CALTEX DELO 400 (DIESEL MULTIGRADE ENGINE FLUID)	E		G	-	-	G	G	-	-
CHEVRON DELO 400LE (ENGINE OIL 15W40)	E		G	G	FT	G	G	G	-
CHEVRON RPM 30 (ENGINE OIL)	E		G	G	G	G	E	G	-
FUCHS TITAN GT 1 PRO C 2 (ENGINE OIL 5W30)	E		G	G	G	-	FT	G	-
IGOL MARINE 15W-40 (ENGINE OIL)	E		G	G	G	-	-	-	-
JB GERMAN OIL HIGHTEC TRUCK SAE 10W40 (ENGINE OIL)	E		G	G	G	G	G	-	-
JCB ENGINE OIL EP (ENGINE OIL 15W40)	E		E	G	G	-	G	G	G
MOBIL DELVAC MX (ENGINE OIL 15W40)	E		E	G	-	-	-	-	-
MOBIL DELWAC 1310 (ENGINE OIL 10W20)	E		E	G	G	-	G	E	G
Q8 T1000 (ENGINE OIL 15W40 - STUO)	E		G	G	G	G	G	G	G
Q8 T720 (ENGINE OIL 15W40)	E		E	G	G	-	E	G	-
Q8 T760 (ENGINE OIL 15W40)	E		G	G	FT	G	G	G	G
SHELL HELIX ULTRA (ENGINE OIL 5W40)	E		G	G	G	-	E	G	-
SHELL RIMULA R3 (ENGINE OIL 10W)	E		E	G	G	-	E	G	E

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FLUID COMPATIBILITY CHART

HYDRAULIC FLUID	TYPE		WIRE SPIRAL	WIRE BRAID				TEXTILE BRAID	TPE TEXTILE BRAID
	ISO 6743-4	DIN 51524	ROCKMASTER GOLDENISO SHIELDMASTER ANACONDA FOREMASTER CRYOFLEX DIAMONDSPIR XTRAFLOW/4WS HYDROROPE HERCULES	TWINPOWER/ PLUS	ROCKMASTER HARVESTER/17 SHIELDMASTER GOLDENISO COVER CRYOFLEX TWINPOWER/4000 TWINPOWER/5000	FOREMASTER GOLDENISO/PILOT ROCKMASTER/1SC SYNERGY INFINITY	EQUATOR XTRAFLOW/ HT	ASTRO SPIRTEX MULTITEX PUSHFIT	THERMO-PLASTIC HOSE (TPE TUBE)
SHELL RIMULA R3 MV (ENGINE OIL)	E		E	E	G	G	-	G	G
SHELL RIMULA R4 X (ENGINE OIL 15W40)	E		E	G	-	-	-	-	-
SHELL RIMULA X30 (ENGINE OIL 10W)	E		E	G	G	G	E	G	E
SHELL ROTELLA TMG (ENGINE OIL 15W40)	E		G	G	G	G	E	G	-
SHELL V OIL 1404	E		G	G	G	-	G	G	G
SPEEDOL DIESEL ENGINE OIL SAE 15W40	E		G	FT	G	-	G	-	-
TOTAL IDO	E		E	G	G	-	G	-	G
TURBINE OILS									
MOBIL JET OIL II	T		E	FT	G	E	FT	E	-
NYCO TURBONICOIL TN 13 B	T		G	X	X	FT	X	E	-
HEAT TRANSFER FLUIDS									
CHEVRON HAVOLINE XLC (FLUID COOLER)	Q		E	G	G	-	X	G	-
CUMMINS FLEETGUARD ES COMPLEAT MEDIUM (COOLANT)	Q		G	G	G	-	-	G	-
DOW DOWFROST HD (COOLANT)	Q		G	G	G	G	-	G	-
MOBIL THERM 605	Q		G	G	G	-	E	G	-
NESTE FLUID COOLER BIO	Q		E	G	G	G	-	G	-
NESTE SUPER FLUID COOLER XLC	Q		E	G	G	-	-	G	-
PETROCANADA CALFLO (HEAT TRANSFER FLUID)	Q		G	G	G	E	G	G	-
PETRONAS PARAFLÙ HT (OAT) AT 100°C	Q		E	G	G	-	X	G	-
WATER GLYCOL EMULSION (50%) AT 100°C	Q		E	G	G	-	X	G	E
METAL WORKING									
BUDEMEIM PHOSPHATHERM BLACK 948	M		E	E	E	-	X	E	-
CASTROL VARIOCUT G613 HC (CUTTING OIL)	M		-	FT	-	FT	X	-	-

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PART 3: BEHAVIOUR TO CHEMICALS FOR NON-HYDRAULIC APPLICATIONS

(GUIDELINES FROM LITERATURE)

FLUID	NITRILE	CHLOROPRENE	CHLOROSULPHONATED POLYETHYLENE	CHLORINATED POLYETHYLENE	POLYESTER
ACETALDHEIDE	X	FT	X	FT	G
ACETIC ACID, 10%	X	FT	G	G	G
ACETIC ACID GLACIAL	X	X	FT	G	FT
ACETONE	FT	FT	X	G	G
AIR (60°C)	G	G	E	E	E
AIR (100°C)	FT	G	E	E	G
AIR (150°C)	X	X	G	G	X
AMMONIA, GASEOUS	FT	G	-	-	X
AMMONIA, LIQUID COLD	E	E	G	-	X
AMMONIA, LIQUID 70°C	X	FT	FT	-	X
AMMONIUM HYDROXIDE, 10%	G	G	E	E	-
AMMONIUM HYDROXIDE, CONC	FT	FT	FT	FT	-
AMMONIUM NITRATE (AQUEOUS SOLUTIONS)	G	G	G	G	G
AMMONIUM PHOSPHATE, MON-DI-TRI BASIC (AQ. SOL)	E	E	E	E	FT
AMMONIUM SULPHATE (AQUEOUS SOLUTION)	E	E	E	E	FT
ANILINE	X	FT	X	X	X
AQUA REGIA	FT	FT	X	FT	-
ASTM OIL N°1, 100°C	E	E	G	G	E
ASTM OIL N°2, 100°C	E	G	FT	FT	E
ASTM OIL N°3, 100°C	E	FT	FT	FT	E
BENZENE	X	X	X	FT	FT
BORIC ACID 10% 100°C	G	G	G	X	G
BRAKE FLUID (SAE J 1703D)	X	-	X	G	-
BRINE	E	FT	FT	G	G
BUTANOL	E	G	G	G	E
CALCIUM BICARBONATE	E	E	E	E	-
CALCIUM HYDROXIDE (AQUEOUS SUSPENSIONS)	E	E	G	G	-
CARBONIC ANHYDRIDE	G	E	G	G	E
CHLORINE	X	X	X	X	X
CHLOROFORM	FT	FT	X	X	X
CITRIC ACID, 33%	G	G	G	-	E
CRUDE OIL	E	X	X	X	G
DETERGENT WATER SOLUTION	G	G	FT	G	G
DIBENZYL ETHER	X	X	X	X	-
DIETHYL PHTALATE (DEPH)	FT	X	X	X	E
EPICHLORHYDRINE	X	X	FT	X	X
ETHYL ACETATE	FT	X	FT	FT	FT
ETHYL ALCOHOL	E	E	E	E	E

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FLUID COMPATIBILITY CHART

FLUID	NITRILE	CHLOROPRENE	CHLOROSULPHONATED POLYETHYLENE	CHLORINATED POLYETHYLENE	POLYESTER
ETHYL ETHER	G	FT	-	-	-
ETHYLENE	E	G	-	-	G
ETHYLENE GLYCOLE	E	E	G	G	E
ETHYLENE GLYCOLE (100°C)	E	G	G	G	G
FORMALDHEYDE	FT	G	FT	G	G
FORMIC ACID 23°C (SATURATED SOLUTION)	G	G	G	X	G
FORMIC ACID 75°C (SATURATED SOLUTION)	FT	G	FT	X	FT
GLYCERINE	E	E	E	E	E
HEPTANE	G	FT	X	FT	E
HYDRAULIC OILS (SEE DETAILED TABLE)	*	*	*	*	*
HYDROCHLORIC ACID, 10%	G	G	G	X	G
HYDROCHLORIC ACID, 37%	FT	FT	FT	X	X
HYDROCHLORIC ACID, 37% 70°C	X	X	X	X	X
HYDROCYANIC ACID 20%	FT	FT	-	-	-
HYDROGEN SULPHIDE	FT	G	FT	X	E
ISOBUTYL ALCOHOL	G	G	G	G	E
ISOPROPYL ALCOHOL	G	E	E	E	E
ISO-OCTANE	G	FT	X	FT	E
KEROSENE (AROMATICS 40%MAX, 70°C)	G	FT	X	FT	-
LEAD FREE PETROL	G	FT	X	FT	E
MAGNESIUM HYDROXIDE (AQUEOUS SOLUTIONS)	G	E	E	E	-
MERCURY	E	E	E	E	E
METHANOL	G	E	E	E	G
METHYL METHACRYLATE	X	X	X	X	-
METHYLETHYLKETONE (MEK)	X	FT	X	FT	E
NITRIC ACID, CONCENTRATED 65%	X	X	X	X	X
NITRIC ACID, DILUTED 10% 50°C	FT	X	X	FT	X
NITRIC ACID FUMING	X	X	X	X	X
NITROGEN	E	E	E	E	E
OLEIC ACID	G	FT	FT	FT	E
OLEUM	X	X	X	X	X
OXALIC ACID 25% 80°C	G	E	G	X	-
OXYGEN (80°C)	FT	G	FT	G	E
PARAFFIN	E	E	FT	E	E
PENTANE	G	FT	X	FT	E
PETROL	E	FT	X	FT	E
PETROLEUM, 70°C	E	G	X	FT	E
PHENOL	X	X	X	X	FT
PHOSPHORIC ACID 20%	G	E	E	X	-
PHOSPHORIC ACID 60% 50°C	FT	G	FT	X	-

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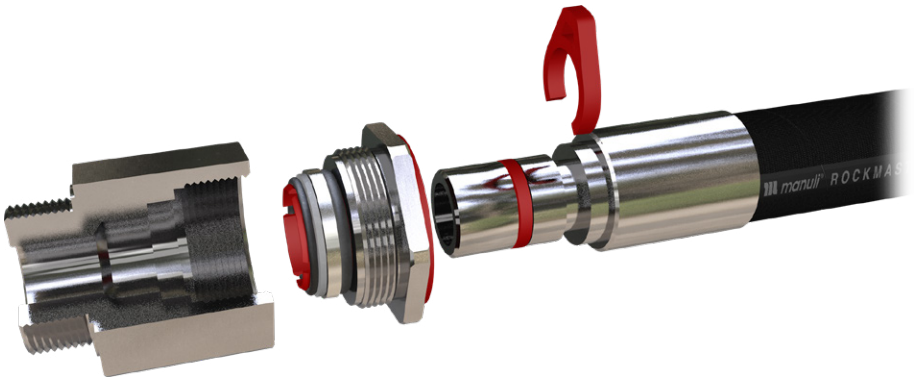
manuli® HYDRAULICS

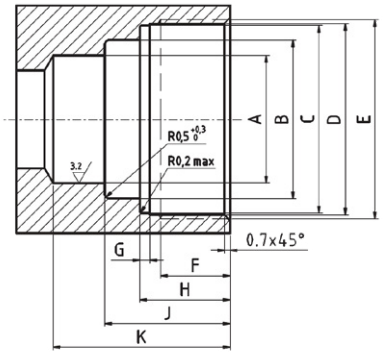
FLUID	NITRILE	CHLOROPRENE	CHLOROSULPHONATED POLYETHYLENE	CHLORINATED POLYETHYLENE	POLYESTER
PHOSPHORIC ACID 85%	FT	G	FT	X	-
PHOSPHOROUS TRI-CHLORIDE	X	X	X	X	-
PICRIC ACID 10% 100°C	FT	FT	G	G	-
POTASSIUM CHLORIDE (AQUEOUS SOLUTION)	E	E	E	E	-
POTASSIUM HYDROXIDE 70°C (MEDIUM HIGH CONC.)	G	G	-	-	E
POTASSIUM SULPHATE (AQUEOUS SOLUTION)	E	E	E	E	-
SEA WATER	E	G	FT	G	E
SOAPS	E	G	G	G	E
SODA CAUSTIC	FT	G	G	FT	G
SODIUM BICARBONATE	E	E	E	E	G
SODIUM CHLORIDE (AQUEOUS SOLUTION)	E	E	G	G	E
SODIUM HYDROXIDE	FT	G	G	FT	E
SODIUM HYDROXIDE 70°C (MEDIUM HIGH CONC.)	FT	G	G	FT	F
SODIUM HYPOCHLORITE (AQUEOUS SOLUTIONS)	FT	G	FT	X	E
SODIUM SILICATE (AQUEOUS SOLUTIONS)	E	E	E	E	-
SODIUM SULPHATE (AQUEOUS SOLUTION)	E	E	E	E	-
SODIUM SULPHIDE	E	E	E	E	-
STEARIC ACID	E	E	FT	E	E
SULPHUR	X	X	G	G	-
SULPHUR DIOXIDE	X	X	X	X	-
SULPHURIC ACID (HOT CONCENTRATED 96°C)	X	X	X	X	X
SULPHURIC ACID (DILUTED 20%)	X	X	FT	FT	E
SULPHURIC ANHYDRIDE	X	FT	FT	FT	-
SULPHUROUS ACID	X	X	FT	FT	X
TANNIC ACID	G	G	G	X	E
TANNIN	E	E	E	E	E
TARTARIC ACID 20%	E	G	G	X	-
TETRAETHYL LEAD	G	FT	X	-	-
TOLUENE	X	X	X	X	E
TURPENTINE	G	X	X	X	-
UREA	E	E	G	G	-
VINYL ACETATE	FT	FT	FT	G	-
VINYL CHLORIDE	X	X	X	X	-
WATER	E	G	X	G	E
XYLENE	FT	X	X	X	G
ZINC CHLORIDE (AQUEOUS SOLUTIONS)	E	E	G	X	E
ZINC SULPHATE (AQUEOUS SOLUTIONS)	E	E	G	X	-

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DIRECT TO PORT CONCEPTS

The male threadless termination can be connected directly to the port, by means of pre-installed cartridge, with a simple axial pushing action of the fitting into the port.





FEMALE PORT DESIGN

SIZE	DIMENSIONS (MM)					RECOMMENDED TORQUE
	A	B	C	D	E	
-04	10.03 + 0.08	12.75 + 0.1	16.55 + 0.07	17.0 + 0.1	M18 X 1	23 - 35 NM
-06	13.03 + 0.08	16.9 + 0.2	20.55 + 0.07	21.0 + 0.1	M22 X 1	30 - 40 NM
-08	16.03 + 0.08	19.9 + 0.2	23.55 + 0.07	24.0 + 0.1	M25 X 1	40 - 50 NM
-12	23.03 + 0.08	27.9 + 0.2	31.05 + 0.07	31.5 + 0.1	M33 X 1.5	70 - 80 NM

SIZE	DIMENSIONS (MM)					RECOMMENDED TORQUE
	F	G	H	I	J	
-04	8.5 + 1	1.1 - 0.1	10.35 + 0.1	14.15 + 0.2	19.56 + 0.15	23 - 35 NM
-06	8.7 + 1	1.15 - 0.1	11.1 + 0.1	15.5 + 0.2	21.95 + 0.15	30 - 40 NM
-08	8.7 + 1	1.25 - 0.1	11.3 + 0.1	15.7 + 0.2	22.15 + 0.15	40 - 50 NM
-12	11.5 + 1	1.7 - 0.1	16.5 + 0.1	21.4 + 0.2	31.35 + 0.15	70 - 80 NM

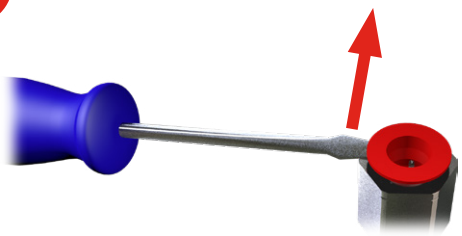
ASSEMBLING PROCEDURE

1



Fit the safety clip into the dedicated groove on the male fitting.

2



Use a flat-headed screwdriver, or similar tool, to remove the protective cap on the cartridge.

3



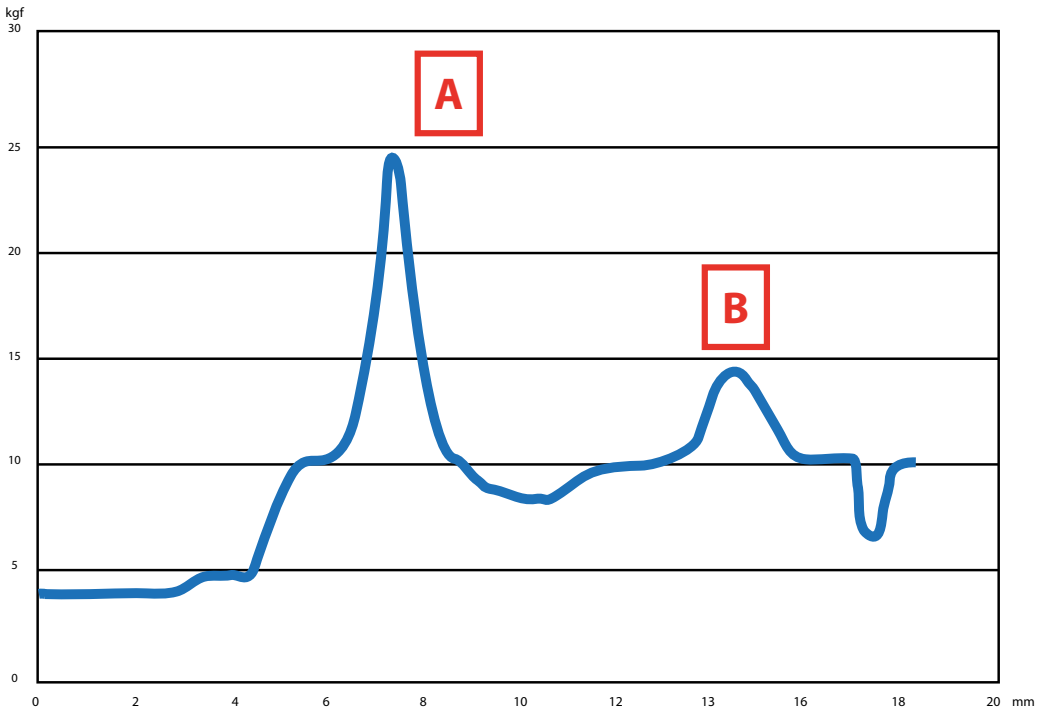
Connect the fitting by pushing it into the cartridge. The fitting is correctly locked and connected when the safety clip touches the cartridge.

ASSEMBLING INSTRUCTIONS

When inserting the male fitting into the cartridge, the axial force required to ensure correct and secure assembly will vary throughout the insertion process (see graph opposite). In particular there will be a two points where the amount of force required will be noticeably higher.

The first peak (A), occurs when the internal collars of the cartridge are opening; For a -08 fitting this would typically be around 20 kgf.

The second peak (B), occurs when the plastic retaining ring is being inserted into the cartridge. This peak is significantly lower than the first.



DIS-ASSEMBLING PROCEDURE

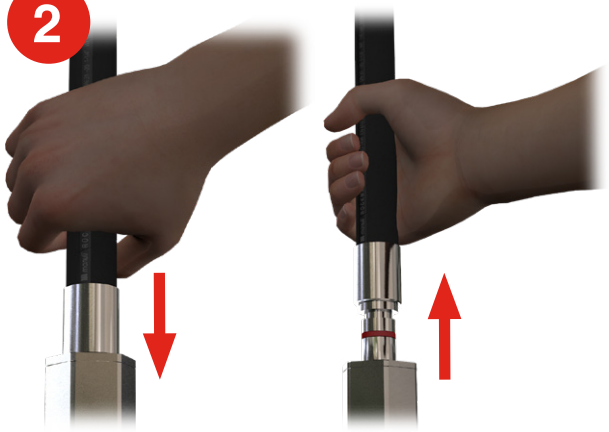
Before disconnection, ensure the system is not under pressure

1



Use a flat-headed screwdriver, or similar tool, to remove the safety clip.

2

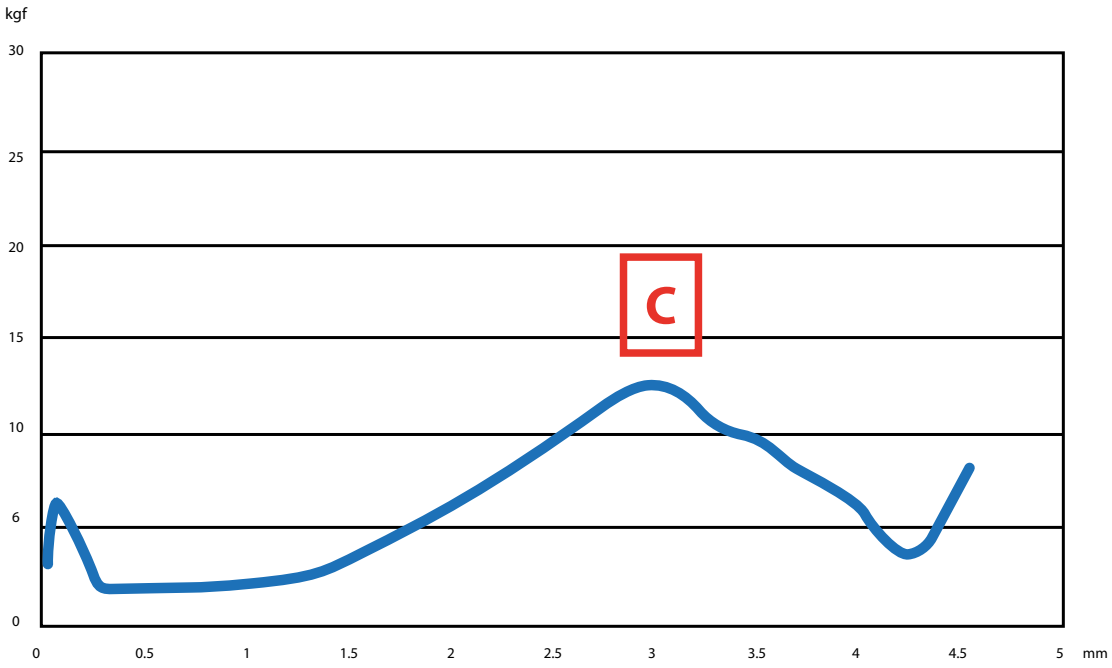


Push the fitting in until the collar touches the cartridge, then pull out to complete the disconnection process. Use a flat-headed screwdriver, or similar tool, to remove the protective cap on the cartridge.

DIS-ASSEMBLING INSTRUCTIONS

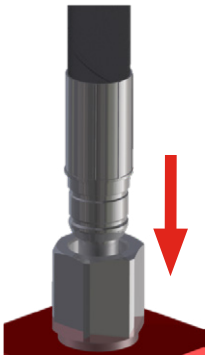
The maximum axial force required to separate the components (after the initial “push”) is approximately 10 kgf for a -08 fitting - see graph opposite.

The peak (C) represents the force required to open the internal retaining ring to allow the withdrawal of the male fitting.



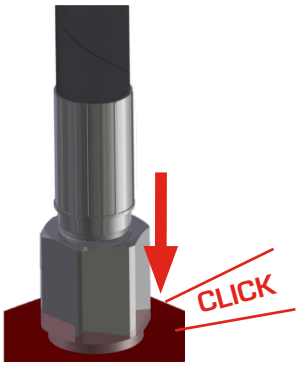
ASSEMBLING PROCEDURE

1



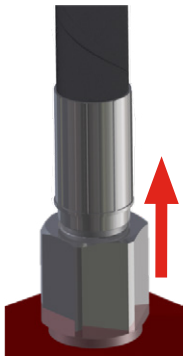
Put the male insert into the adaptor.

2



Push the male insert until a “click” is heard.

3



Pull the insert back slightly to check that the connection has been made successfully.

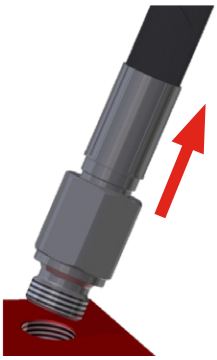
DIS-ASSEMBLING PROCEDURE

1



.Unscrew the adaptor.

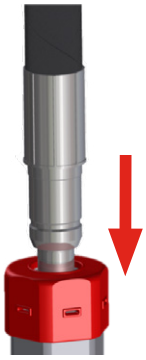
2



Remove the adaptor and insert as a single piece.

ASSEMBLING PROCEDURE

1



Put the male insert into the adaptor.

2



Push the male insert until a “click” is heard.

3



Pull the insert back slightly to check that the connection has been made successfully.

DIS-ASSEMBLING PROCEDURE

1



Push male insert against the internal stop

2



Insert a flat-headed screwdriver into one of the slots in the red sleeve to lock it in place.

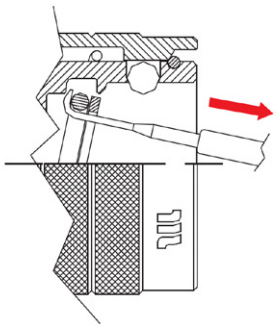
3



Pull the male insert out of the adaptor.

O-RING AND BACK-UP RING SEAL REPLACEMENT ON FEMALE COUPLINGS

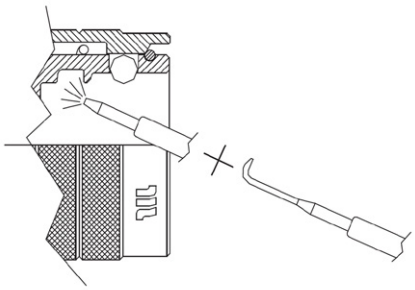
1



Remove the damaged O-ring and back-up ring.

Do not use sharpened tools.
Take care not to damage the components.

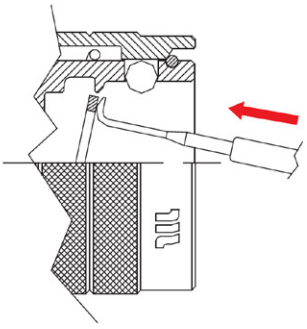
2



Clean the seal area.

Remove all residual parts of damaged O-ring and back-up ring.

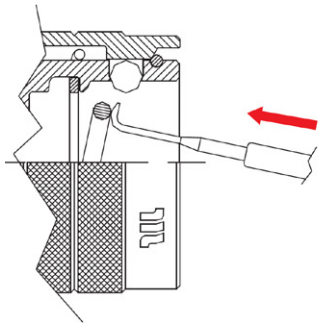
3



Insert the new back-up ring.

Take care not to deform or scratch the back-up ring.
Ensure the back-up ring is correctly located in its seat.

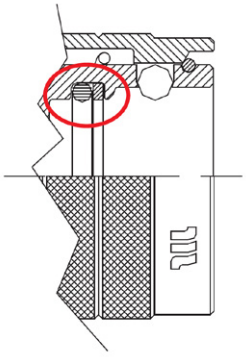
4



Insert the new O-ring.

Lubricate the O-ring before inserting.
Take care not to scratch the O-ring.
Ensure the O-ring is correctly located in it's seat.

5

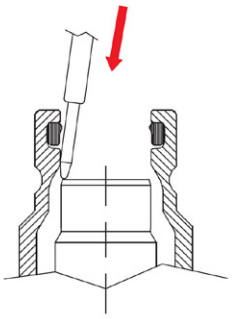


The replacement process is now complete.

Lubricate the seal system.

POLYURETHANE SEAL REPLACEMENT ON MALE FLAT-FACE COUPLINGS

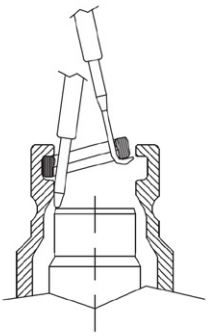
1



Use a suitable tool to pull back the valve and hold it in place.

Do not use sharpened tools.
Take care not to damage the components.

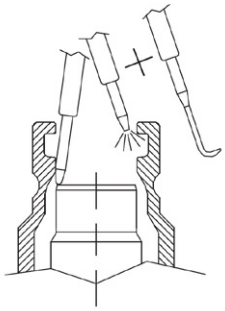
2



Remove the damaged seal.

Take care not to damage the components.

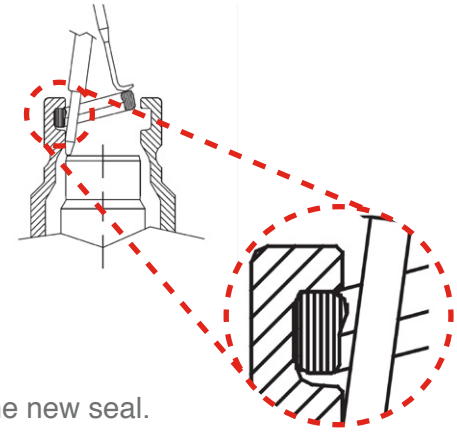
3



Clean the seal area.

Remove all residual parts of polyurethane seal.

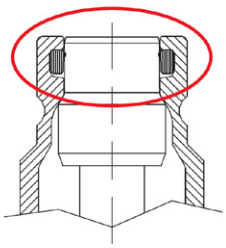
4



Insert the new seal.

Ensure the seal is correctly oriented.
Lubricate the seal before inserting.
Take care not to scratch the seal.
Ensure the seal is correctly located in it's seat.

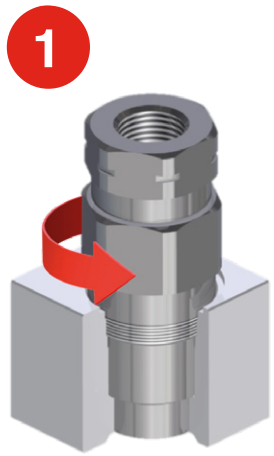
5



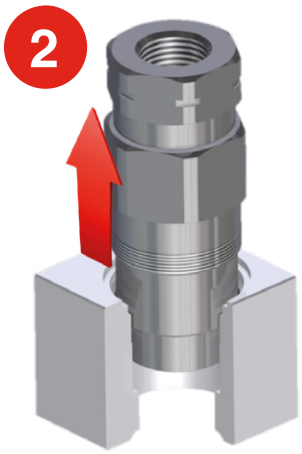
Release the valve to complete the replacement process.

Lubricate the seal system.

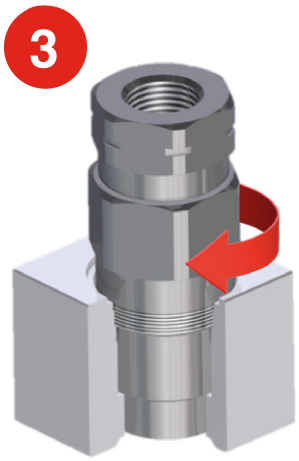
FEMALE MULTICONNECTOR REPLACEMENT INSTRUCTIONS



Use a wrench on the lower hexagon to unscrew the old coupling



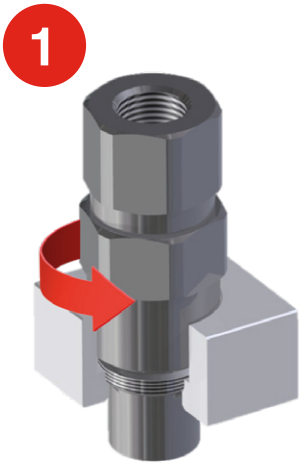
Lift out the old coupling and replace with the new part



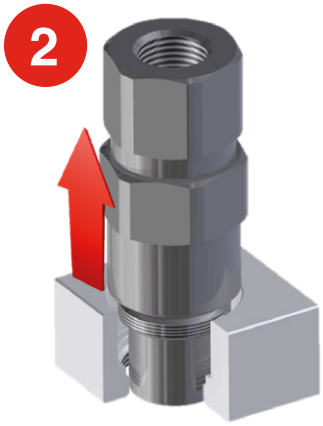
Use a wrench on the lower hexagon to tighten the new coupling to the torque listed below

SIZE			HEX SIZE	TIGHTENING TORQUE
DN	Inch	Dash	mm (AF)	Nm
10	⅜	06	30	60
12.5	½	08	36	90
19	¾	12	41	150
25	1	16	50	250

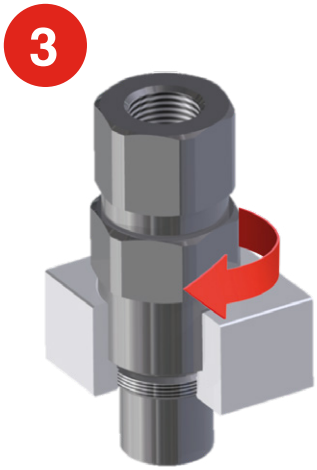
MALE MULTICONNECTOR REPLACEMENT INSTRUCTIONS



Use a wrench on the lower hexagon to unscrew the old coupling



Lift out the old coupling and replace with the new part

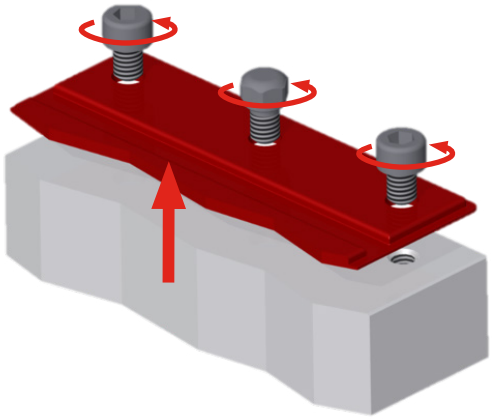


Use a wrench on the lower hexagon to tighten the new coupling to the torque listed below

SIZE			HEX SIZE	TIGHTENING TORQUE
DN	Inch	Dash	mm (AF)	Nm
10	⅜	06	30	60
12.5	½	08	36	100
19	¾	12	42	150
25	1	16	50	250

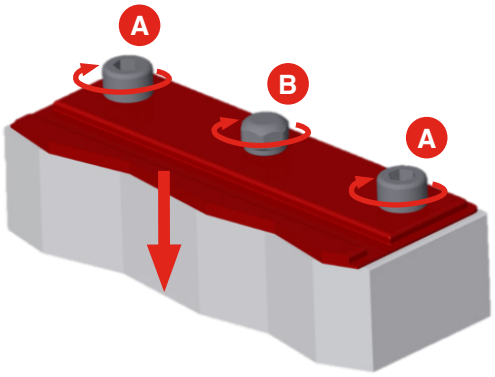
MULTICONNECTOR COVER REPLACEMENT INSTRUCTIONS

1



Unscrew the fixing screws and remove the old cover.

2

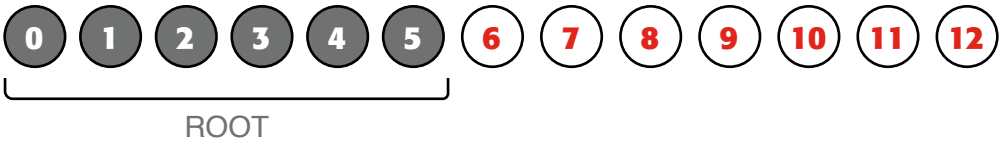


Place the new cover on the face of the fixed part and insert the screws into the positions shown.

Tighten each screw to the torque listed below.

SCREW	HEX SIZE	SOCKET SIZE	TIGHTENING TORQUE
	mm (AF)	mm (AF)	Nm
A	-	5	5
B	9	-	5

HOSE



DIGIT "0"



"**H**" letter always means "Hoses"

DIGITS "1-2-3-4-5"



Family
"Five digit number" that defines a specific hose family - see "Hose Family Table".

Digit "1"	Hose Type
0	Hydraulic rubber hose
2	Thermoplastic hose
3	Traded hose
7	Oil & marine hose
8	Industrial hose
9	PTFE hose

Digits "1-2"	Hose Type
10	Hydraulic rubber hose
16	Textile braided - Traded

DIGIT "6"



Progressive **letter** (**A**, **B**, ...) is used to identify an updated structure

In case a **number** is used, it must be read together with digits "7" and "8" to identify the hose's diameter in mm

DIGITS "7-8"



Diameter in millimetres

In case digit "6" is a number, the hose diameter in millimetres should be read including it.

HOSE (CONTINUED)

DIGIT "9" 0 1 2 3 4 5 6 7 8 **9** 10 11 12

Value	Package	Marking Technology
O	Box	Ink transfer
B	Reel	Ink transfer
P	Plastic reel	Ink transfer
R	Roll	Ink transfer
W	Wooden reel	Ink transfer
E	Defined in digit "10"	Embossed / embedded
I	Defined in digit "10"	Inkjet
M	Defined in digit "10"	Mylar

DIGIT "10" 0 1 2 3 4 5 6 7 8 9 **10** 11 12

Value	Package	Special
L	Box (≤ DN51); Wooden reel (> DN51)	Branding with License Number
O	Box	-
B	Reel	-
P	Plastic reel	-
R	Roll	-
W	Wooden reel	-
A	Box	100 ft (spiralled) / 50 ft (GoldenBlast)
Q	Box	40 m (GoldenBlast)
S, V, Z, Y	Box	Special length
C	-	Branding without "Made in..." declaration

DIGIT "11" 0 1 2 3 4 5 6 7 8 9 10 **11** 12

Value	Special
S, V, Z, Y	Special length
C	Branding without "Made in..." declaration
9	Manuli standard branding
0-8	Private brand
4	Soft Seal Sleeve

HOSE (CONTINUED)

DIGIT "12" 0 1 2 3 4 5 6 7 8 9 10 11 **12**

Value	Special
9	Manuli standard branding
0-8	Private brand

Notes for digits "9-10-11-12"

If the above convention is NOT followed then the branding is considered "Private". Exceptions related to "Manuli Brand" hoses are: x900; xx90; x556; x833; x962; xx97; xx95

HOSE FAMILIES

FIRST 6 DIGITS	PROD. TECH.	PROD. TECH. DESCRIPTIONS	FAMILY	FAMILY DESCRIPTION
H01006	1	WIRE BRAIDED	6	TRACTOR/1SN
H01007	1	WIRE BRAIDED	7	ROCKMASTER/1SN
H01013	1	WIRE BRAIDED	13	TRACTOR/1SC
H01025	1	WIRE BRAIDED	25	TRACTOR/2SC
H01027	1	WIRE BRAIDED	27	TRACTOR/2SN
H01030	1	WIRE BRAIDED	30	ROCKMASTER/2SC
H01031	1	"WIRE BRAIDED; WIRE SPIRALLED"	31	SHIELDMASTER/4000
H01032	1	"WIRE BRAIDED; WIRE SPIRALLED"	32	SHIELDMASTER/5000
H01033	1	WIRE BRAIDED	33	CPH/2SC
H01034	1	WIRE BRAIDED	34	JACKMASTER
H01035	1	WIRE BRAIDED	35	ROCKMASTER/2ST
H01038	1	WIRE BRAIDED	38	ROCKMASTER/2SN
H01039	1	WIRE BRAIDED	39	NOZONE/2K
H01056	1	WIRE BRAIDED	56	HARVESTER/17
H01058	1	WIRE BRAIDED	58	EQUATOR/1 BLACK
H01059	1	WIRE BRAIDED	59	EQUATOR/1 BLUE
H01060	1	WIRE BRAIDED	60	EQUATOR/2 BLACK
H01061	1	WIRE BRAIDED	61	EQUATOR/2 BLUE
H01084	1	WIRE BRAIDED	84	LYTE-FLEX
H01101	1	WIRE BRAIDED	101	ROCKMASTER/2 PLUS
H01104	1	"WIRE BRAIDED; WIRE SPIRALLED"	104	SHIELDMASTER/5000 MINE
H01105	1	WIRE BRAIDED	105	SHIELDMASTER/2SC MINE
H01106	1	WIRE BRAIDED	106	SHIELDMASTER/2000
H01108	1	WIRE BRAIDED	108	ROCKMASTER/1SC
H01110	1	WIRE BRAIDED	110	REFRISTAR

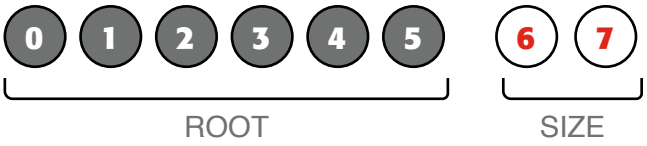
HOSE FAMILIES (CONTINUED)

FIRST 6 DIGITS	PROD. TECH.	PROD. TECH. DESCRIPTIONS	FAMILY	FAMILY DESCRIPTION
H01112	1	WIRE BRAIDED	112	TWINPOWER/PLUS
H01113	1	WIRE BRAIDED	113	FLUICONNECTO 2SN
H01119	1	WIRE BRAIDED	119	TWINPOWER 4000
H01120	1	WIRE BRAIDED	120	TWINPOWER 5000
H01122	1	WIRE BRAIDED	122	SHIELDMASTER/2 PLUS MINE
H01124	1	WIRE BRAIDED	124	FIREND
H01125	1	WIRE BRAIDED	125	GOLDENISO/21 ANTIWEAR
H01126	1	WIRE BRAIDED	126	GOLDENISO/28 ANTIWEAR
H01127	1	WIRE BRAIDED	127	TREX
H01128	1	WIRE BRAIDED	128	XTRAFLOW/ HT
H01129	1	WIRE BRAIDED	129	XTRAFLOW/2WB
H01133	1	WIRE BRAIDED	133	ULTRASTAR
H01134	1	WIRE BRAIDED	134	GOLDENISO/35 LONGLIFE
H01135	1	WIRE BRAIDED	135	LUBEMASTER
H01154	1	WIRE BRAIDED	154	SHIELDMASTER/21
H01155	1	"WIRE BRAIDED; WIRE SPIRALLED"	155	SHIELDMASTER/28
H01157	1	WIRE BRAIDED	157	FOREMASTER/28
H01156	1	WIRE BRAIDED	156	FOREMASTER/21
H01158	1	WIRE BRAIDED	158	CRYOFLEX/21
H01159	1	WIRE BRAIDED	159	CRYOFLEX/35
H01A32	1	"WIRE BRAIDED; WIRE SPIRALLED "	A32	SHIELDMASTER/6000
H01A78	1	WIRE BRAIDED	A78	SUPERJET/PLUS
H01A79	1	WIRE BRAIDED	A79	SUPERJET/PLUS BLUE
H01A94	1	WIRE BRAIDED	A94	PROJET
H01A95	1	WIRE BRAIDED	A95	PROJET BLUE
H02001	2	SMOOTH HOSES	1	SUPERJET
H02002	2	SMOOTH HOSES	2	SUPERJET BLUE
H02003	2	SMOOTH HOSES	3	K-JET
H02004	2	SMOOTH HOSES	4	TRACTOR/1SN
H02008	2	SMOOTH HOSES	8	K-JET BLUE
H02011	2	SMOOTH HOSES	11	GOLDENISO/14
H05002	5	WIRE BRAIDED (R5 HOSE TYPE)	2	COVER
H09002	9	TEXTILE	2	REFRIMASTER
H09045	9	TEXTILE	45	ASTRO/2
H09046	9	TEXTILE	46	ASTRO/3
H09066	9	TEXTILE	66	PUSHFIT
H09067	9	TEXTILE	67	MULTITEX
H09069	9	TEXTILE	69	MASTERTEX
H09071	9	TEXTILE	71	REFRIMASTER PLUS

HOSE FAMILIES (CONTINUED)

FIRST 6 DIGITS	PROD. TECH.	PROD. TECH. DESCRIPTIONS	FAMILY	FAMILY DESCRIPTION
H09073	9	TEXTILE	73	MULTITEX
H10008	10	WIRE SPIRALLED	8	ROCKMASTER/4SP
H10018	10	WIRE SPIRALLED	18	DIAMONDSPIR
H10031	10	WIRE SPIRALLED	31	ROCKMASTER/12
H10035	10	WIRE SPIRALLED	35	ROCKMASTER/13
H10044	10	WIRE SPIRALLED	44	ROCKMASTER/4SH
H10049	10	WIRE SPIRALLED	49	ROCKMASTER/15
H10066	10	WIRE SPIRALLED	66	GOLDENBLAST/PLUS
H10067	10	WIRE SPIRALLED	67	GOLDENBLAST/SIX
H10072	10	WIRE SPIRALLED	72	GOLDENBLAST
H10086	10	WIRE SPIRALLED	86	SHIELDMASTER/6000 MINE
H10089	10	WIRE SPIRALLED	89	GOLDENISO/45 LONGLIFE
H10091	10	WIRE SPIRALLED	91	XTRAFLOW/4WS
H10093	10	WIRE SPIRALLED	93	GOLDENISO/21 XTRAFLEX
H10095	10	WIRE SPIRALLED	95	GOLDENISO/28 XTRAFLEX
H10096	10	WIRE SPIRALLED	96	GOLDENISO/35 XTRAFLEX
H10097	10	WIRE SPIRALLED	97	GOLDENISO/42 XTRAFLEX
H10098	10	WIRE SPIRALLED	98	GOLDENISO/38 LONGLIFE
H10102	10	WIRE SPIRALLED	102	DIAMONDSPIR/21
H10103	10	WIRE SPIRALLED	103	DIAMONDSPIR/35
H10104	10	WIRE SPIRALLED	104	DIAMONDSPIR/14
H10108	10	WIRE SPIRALLED	108	GOLDENISO/50 DIAMOND
H10109	10	WIRE SPIRALLED	109	GOLDENISO/56 DIAMOND
H10113	10	WIRE SPIRALLED	113	SHIELDMASTER/17 WS
H10119	10	"WIRE BRAIDED; WIRE SPIRALLED"	119	SHIELDMASTER/35
H10120	10	“WIRE BRAIDED; WIRE SPIRALLED”	120	SHIELDMASTER/42
H10125	10	WIRE SPIRALLED	125	HERCULES/HT
H10132	10	WIRE SPIRALLED	132	ANACONDA
H10133	10	WIRE SPIRALLED	133	FOREMASTER/35
H10134	10	WIRE SPIRALLED	134	FOREMASTER/42
H30005	30	TEXTILE, HELIX WIRE	5	SPIRTEX/K
H30010	30	THERMOPLASTIC	10	HYDROPLAST
H30011	30	THERMOPLASTIC	11	HYDROTWIN

FERRULES



DIGIT "0"



Value	Ferrule Type
M	Ferrule MF2000
C	Ferrule or clamp A/C
K	Reusable ferrule

DIGIT "1"



Value	Description
0	Always

DIGITS "2-3"



Refer to Ferrule Series table

DIGIT "4"



Value	Issue of Ferrule
0	First issue of ferrule series
1	Second issue of ferrule series
2	Third issue of ferrule series
3	Fourth issue of ferrule series

DIGIT "5"



Value	Special
0	Standard
1	Customised version
2	Customised version
...	...

FERRULES (CONTINUED)

DIGITS "6-7" 0 1 2 3 4 5 – **6 7**

Hose bore size

FERRULE SERIES

DIGITS	DESCRIPTION
1	SKIVE FERRULE FOR W.B HOSES
3	NO-SKIVE FERRULE FOR TEXTILE BRAIDED HOSES / STAR-CRIMP FERRULE AC FOR REFRISTAR
4	REUSABLE STAR-FIT FERRULE AC FOR REFRISTAR
7	REFRIMASTER FERRULE AC
8	NO-SKIVE FERRULE FOR COMPACT HOSES
9	SKIVE FERRULE FOR W.B AND W.S HOSES
10	REFRIMASTER CLAMP
13	DOUBLE SKIVE FERRULE FOR H.D. SPIRAL HOSES (INTERLOCK 4-6 PLY)
14	DOUBLE SKIVE FERRULE FOR H.D. SPIRAL HOSES (INTERLOCK 4 PLY)
15	DOUBLE SKIVE FERRULE FOR H.D. SPIRAL HOSES (INTERLOCK PLUS 4 PLY)
16	DOUBLE SKIVE FERRULE FOR H.D. SPIRAL HOSES (INTERLOCK PLUS 6 PLY)
17	DOUBLE SKIVE FERRULE FOR EXTRA DUTY SPIRAL HOSES (BLASTLOCK-XTRALOCK 4 PLY)
18	DOUBLE SKIVE FERRULE FOR EXTRA DUTY SPIRAL HOSES (BLASTLOCK-XTRALOCK 6 PLY)
19	
24	NO-SKIVE FERRULE FOR MINIFIT
26	DOUBLE SKIVE FERRULE FOR EXTRA DUTY SPIRAL HOSES (INTERLOCK SUPER)
28	DOUBLE SKIVE FERRULE FOR EXTRA DUTY SPIRAL HOSES (INTERLOCK SUPER)
31	NO-SKIVE FERRULE FOR 1 W.B. HOSES
33	NO-SKIVE FERRULE FOR W.B. HOSES
34	NO-SKIVE FERRULE FOR W.B. HOSES
35	
54	NO-SKIVE FERRULE FOR 4 W.S. - 2 W.B. HOSES (SPIRALFIT)
55	NO-SKIVE FERRULE FOR 4 W.S. - 6 W.S. HOSES (SPIRALFIT)
90	FRIGOSTAR CLAMP

TWO-PIECE HYDRAULIC FITTINGS



DIGIT "0"



Value	Description
M	MF2000 Connector (Multifit, Interlock, Xtralock, ...)
O	Accessories (banjo, flange clamps, bolt, ...)
L	Push-Lock Connector

DIGIT "1"



Value	Description
1	Male or Double connector type Multifit
2	Female or Flange type Multifit
3	Male or Double connector type Interlock and Interlock Plus
4	Female or Flange type Interlock and Interlock Plus
5	Male or Double connector type Blastlock
6	Female or Flange type Blastlock
7	Male or Double connector type Spiralfit
8	Female or Flange type Spiralfit / Accessories (flange clamps and bolt)
A	Male or Double connector type Interlock Super
B	Female or Flange type Interlock Super
S	Female type Minifit
T	Male type Minifit

DIGITS "2-3"



The numbers in these positions specify the termination end or the second tail.

See "Termination Ends Type" table for coding details.

TWO-PIECE HYDRAULIC FITTINGS (CONTINUED)

DIGIT "4" — 0 1 2 3 **4** 5 – 6 7 – 8 9 10 11 12

Value	Bending Angle
0	Special Bending Angle
1	Straight
2	22,5° Swept
3	30° Swept
4	45° Swept
5	Double connector
6	60° Swept
7	67,5° Swept
8	Compact type
9	90° Swept

DIGIT "5" — 0 1 2 3 4 **5** – 6 7 – 8 9 10 11 12

Value	Description
0	No Nut / Male / Double skive Flange type Interlock/InterlockPlus/Xtralock
1	Crimped-back Nut / No-skive or External-skive Flange type Multifit/Spiralfit
2	Thrust-wire Nut
3	Slip-on Nut
4	Double Thrust-wire Nut
7	One-piece flange clamp (only for O8... Codes)
8	ISO/SAE code 61 split flange clamp (only for O8... Codes)
9	ISO/SAE code 62 split flange clamp (only for O8... Codes)

DIGITS "6-7" — 0 1 2 3 4 5 – **6 7** – 8 9 10 11 12

Tail size

DIGITS "8-9" — 0 1 2 3 4 5 – 6 7 – **8 9** 10 11 12

Termination end size

DIGITS "10-11-12" — 0 1 2 3 4 5 – 6 7 – 8 9 **10 11 12**

These digits specify various customisations related to dimensions, threads, drops, ...

ONE-PIECE HYDRAULIC FITTINGS



DIGIT "0"



Value	Description
OPK	One-Piece (MF3000) No Skive Kompact
OPF	One-Piece (MF3000) No Skive Flat

DIGIT "1"



Value	Description
1	Male
2	Female or Flange type

DIGITS "2-3"



The numbers in these positions specify the termination end or the second tail.

See "Termination Ends Type" table for coding details.

DIGIT "4"



Value	Bending Angle
0	Special Bending Angle
1	Straight
2	22,5° Swept
3	30° Swept
5	45° Swept
6	60° Swept
7	67,5° Swept
8	Compact type
9	90° Swept

ONE-PIECE HYDRAULIC FITTINGS (CONTINUED)

DIGIT "5"

0 1 2 3 4 **5** – 6 7 – 8 9 10 11 12

Value	Description
0	Flange type Interlock/Xtralock/Multispiral or Male
1	Crimped-back Nut or Flange type Multifit
2	Thrust-wire Nut
3	Slip-on Nut

DIGITS "6-7"

0 1 2 3 4 5 – **6** **7** – 8 9 10 11 12

Tail size

DIGITS "8-9"

0 1 2 3 4 5 – 6 7 – **8** **9** 10 11 12

Termination end size

DIGITS "10-11-12"

0 1 2 3 4 5 – 6 7 – 8 9 **10** **11** **12**

These digits specify various customisations related to dimensions, threads, drops, ...

TERMINATION END TYPES

DIGIT	FITTINGS	Q.SAFE	DESCRIPTION (MALE END)	DESCRIPTION (FEMALE END)
00	00		DOUBLE CONNECTOR (SAME TAIL IN TWO-ENDS CONNECTORS) / NO END (PLUG)	NO END (PLUG)
01		01	BSP MALE DIN 3852-11 - ISO 1179-2 HEAVY DUTY FORM E	FIXED FEMALE GAS JIS B 2351 TYPE O
02		02	BSP MALE TAPERED THREAD LONG	BSP FEMALE TAPERED
03	03		BSP MALE PARALLEL THREAD O'R FLAT FACE (ISO 1179-3)	BSP BANJO
04		04	BSP MALE BULKHEAD	BSP FIXED FEMALE DIN 3852-2 FORM X / ISO 1179-1
05	05	05	BSP MALE 60° CONE SEAT BS5200 / ISO 8434-6	BSP FEMALE 60° CONE BS5200 / ISO 8434-6
06	06		BSP MALE FLAT FACE DIN 3852-2 FORM A	BSP FEMALE FLAT SEAT
07	07		BSPT MALE	JIS B 8363 (BSP - NISSAN) SWIVEL FEMALE
08	08	08	-	BSP O-RING FEMALE 60° CONE BS5200 / ISO 8434-6
09	09		BSP MALE O'RING BOSS ADJUSTABLE ISO 1179-3	METRIC BANJO DIN 7642
10	10		METRIC MALE 60° CONE SUPERLIGHT DIN 3863	METRIC FEMALE 60° CONE SUPERLIGHT DIN 3863
11	11	11	METRIC MALE 24° CONE SEAT LIGHT TYPE DIN 3861 / ISO 8434-1	-
12	12	12	METRIC MALE 24° CONE SEAT HEAVY TYPE DIN 3861 / ISO 8434-1	METRIC FEMALE 24° CONE O'RING HEAVY TYPE DIN 3865 / ISO 8434-1 LONG DROP
13	13		METRIC MALE FLAT FACE DIN 3852-1 FORM A	METRIC FEMALE MULTISEAL CONE DIN 3868
14		14	METRIC MALE DIN 3852-11 FORM E B/ ISO 9974-2	METRIC FIXED FEMALE DIN 3852-1 FORM X AND FORM Y
15	15		-	METRIC FEMALE 24° CONE O'RING LIGHT TYPE DIN 3865 / ISO 8434-1
16	16		-	METRIC FEMALE 24° CONE O'RING HEAVY TYPE DIN 3865 / ISO 8434-1
17	17		FRENCH MILLIMETRIC METRIC MALE 24° CONE SEAT	FRENCH MILLIMETRIC METRIC FEMALE
18	18		FRENCH GAZ METRIC MALE 24° CONE SEAT	FRENCH GAZ METRIC FEMALE
19	19	19	METRIC MALE ISO 6149-2 / DIN 3852-3 FORM F (ONLY FOR FITTINGS AND Q.SAFE) METRIC MALE WITH RETAINING RING (ADJUSTABLE + NON-ADJUSTABLE HEAVY) ISO 9974 PORT COMPATIBLE (ONLY FOR ADAPTORS)	METRIC FIXED FEMALE ISO 6149-1
20	20		-	DIN METRIC STANDPIPE L.T. DIN 2353
21	21		-	DIN METRIC STANDPIPE H.T. DIN 2353
23		23	JIC BULKHEAD MALE 37° CONE ISO 8434-2 / SAE J514	METRIC FEMALE 24° METAL CONE (WITHOUT O-RING)
24	24	24	ORFS MALE ISO 8434-3 / SAE J1453	ORFS FEMALE ISO 8434-3 / SAE J1453
25	25	25	JIC MALE (37° CONE) ISO 8434-2 / SAE J514	JIC FEMALE (37° CONE SEAT) ISO 8434-2 / SAE J514
26	26		SAE MALE (45° CONE) SAE J512	SAE FEMALE (45° CONE SEAT) SAE J512
27	27	27	ORFS BULKHEAD MALE ISO 8434-3 / SAE J1453	JIC FEMALE DOUBLE HEXAGON 37° CONE SEAT
28	28	28	NPTF MALE 60° CONE SEAT SAE J476A	NPSM SWIVEL FEMALE 60° CONE SAE J514
30	30	30	MALE O'RING BOSS TYPE SAE J1926-3	FEMALE PORT SAE J1926-1
32		32	MALE O'RING BOSS (ADJUSTABLE + NON-ADJUSTABLE HEAVY) SAE J1926-	
2				
33	33		FLANGE HEAD (NOT INCLUDING CLAMPS) CODE 61 WITHOUT O'RING (ADAPTERS)	FLANGE ISO/SAE 61 (ISO 6162-1 / SAE J518 CODE 61)
34	34	34	API MALE	NPTF FIXED FEMALE SAE J476A
35	35		NPT MALE	NPT FIXED FEMALE
36	36		FLANGE HEAD (NOT INCLUDING CLAMPS) CODE 62 WITHOUT O'RING (ADAPTERS)	FLANGE ISO/SAE 62 (ISO 6162-2 / SAE J518 CODE 62)
37	37	37	METRIC MALE 60° CONE SUPERLIGHT DIN 3863 BULKHEAD	FLANGE ISO/SAE 62 PLUS / FLANGE (A/C)
38	38		JIS B8363 TOYOTA MALE	JIS B 8363 (TOYOTA) SWIVEL FEMALE
39	39		JIS MALE O-RING BOSS - JIS B 8363 TYPE CO	SUPERCAT FLANGE
40	40		KOMATSU METRIC MALE 60° CONE SEAT	JIS B 8363 (KOMATSU) SWIVEL FEMALE

TERMINATION END TYPES (CONTINUED)

DIGIT	FITTINGS	Q.SAFE	DESCRIPTION (MALE END)	DESCRIPTION (FEMALE END)
41	41		NPTF SWIVEL MALE SAE J476A	KOMATSU FLANGE
43	43		SAE O'RING BOSS SWIVEL MALE	-
44	44		MALE BSPP FLAT FACE BONDED WASHER	ORFS FEMALE LONG DROP ELBOW ISO 12151-1 / SAE J516
46	46		SUPER STAPLE MALE	SUPER STAPLE FIXED FEMALE
47	47		SUPER STAPLE MALE (ONLY FOR INTERLOCK PLUS AND SPIRALFIT)	JIC (37° CONE) FEMALE LONG DROP ELBOW ISO 12151-5 / SAE J516
48	48		STAPLE MALE SAE J1467	STAPLE FIXED FEMALE SAE J1467
49	49		ORFS SWIVEL MALE	WASH CLEANING
52	52		SAE 45° CONE METRIC THREAD	SAE 45° CONE METRIC THREAD
55	55		BSP PARALLEL THREAD 60° CONE BS5200 (ONLY FOR INTERLOCK/XTRALOCK TAIL)	BSP PARALLEL THREAD 60° CONE BS5200 (ONLY FOR INTERLOCK/ XTRALOCK TAIL)
56	56		UNION FITTING (MALE SUB)	UNION FITTING (FEMALE SUB)
58	58		GOST MALE	BSP PARALLEL THREAD O'RING 60° CONE BS5200 (ONLY FOR INTERLOCK/ XTRALOCK TAIL)
59	59		FLUSHFIT MALE LOW PRESSURE	FLUSHFIT FIXED FEMALE LOW PRESSURE
61	61		FLUSHFIT MALE HIGH PRESSURE	FLUSHFIT FIXED FEMALE HIGH PRESSURE
62	62		MALE METRIC THREAD 24° CONE HEAVY TYPE DIN 3861 (ONLY FOR INTERLOCK/XTRALOCK TAIL)	FLUSHFIT SWIVEL FEMALE LOW PRESSURE
63	63			TYPE M FEMALE 58° CONE
66	66		METRIC MALE ISO 6149-2 / DIN 3852-3 FORM F (ONLY FOR ADAPTORS)	METRIC FEMALE 24° CONE O'RING HEAVY TYPE DIN 3865 / ISO 8434-2 (ONLY FOR BLASTLOCK / XTRALOCK); GRAYLOC HUB (ONLY FOR DRILLING)
67	67		STANDARD SSKV	STANDARD SSKV
68	68		SUPER SSKV	SUPER SSKV
74	74		ORFS TYPE (ONLY FOR INTERLOCK/XTRALOCK TAIL)	ORFS TYPE (ONLY FOR INTERLOCK/XTRALOCK TAIL)
75	75		JIC THREAD 37° CONE (ONLY FOR INTERLOCK/ XTRALOCK TAIL)	JIC THREAD 37° CONE (ONLY FOR INTERLOCK/XTRALOCK TAIL)
76	76		ISO 6164 FLANGE TYPE 40 MPA WITHOUT O-RING GROOVE / EXPANSION VALVE SHORT PILOT (A/C)	ISO 6164 FLANGE TYPE 40 MPA WITH O-RING GROOVE / EXPANSION VALVE (A/C)
77		77	DIN BULKHEAD MALE 24° CONE LIGHT TYPE ISO 8434-1	ASME B16.5 RING JOINT TYPE FLANGE
78	78		NPTF MALE 60° CONE SEAT SAE J476A (ONLY FOR INTERLOCK/BLASTLOCK/XTRALOCK)	SPO COMPACT FLANGE
79	79		FIXED MALE O'RING SEAT (A/C)	HUB API 16A (TYPE 16BX) / FEMALE O'RING (A/C)
80	80		MALE SWIVEL O'RING (A/C)	FLANGE API 6A (TYPE 6B/6BX) / O'RING SHORT PILOT (A/C)
81	81		MALE GROOVED	FRENCH GAZ STANDPIPE
82		82	FRENCH GAZ BULKHEAD METRIC MALE 24° CONE SEAT	STAPLE LOCK SWIVEL FEMALE
83	83		4-BOLTS FLANGE HEAD CODE 61 WITHOUT O'RING (ADAPTERS)	FLANGE ISO/SAE 61 (ISO 6162-1 / SAE J518 CODE 61) / 4-BOLTS FLANGE HEAD CODE 61 (ADAPTERS)
84	84			XTRAFLANGE 61 (ISO6162-1 / SAE J518 CODE 61 PORT COMPATIBLE)
85	85			XTRAFLANGE 62 (ISO 6162-2 / SAE J518 CODE 62 PORT COMPATIBLE)
86	86		4-BOLTS FLANGE HEAD CODE 62 WITHOUT O'RING (ADAPTERS)	FLANGE ISO/SAE 62 (ISO 6162-2 / SAE J518 CODE 62) - ONLY FOR XTRALOCK / 4-BOLTS FLANGE HEAD CODE 62 (ADAPTERS)
87	87	87	DIN BULKHEAD MALE 24° CONE HEAVY TYPE ISO 8434-1	ASME B16.5 FLANGE / SDB COMPRESSOR (A/C)
89	89		SUPERCAT FLANGE (ONLY FOR INTERLOCK/ XTRALOCK TAIL)	SUPERCAT FLANGE (ONLY FOR INTERLOCK/XTRALOCK TAIL)
91	91		-	GEAR PUMP FLANGE
92	92		-	NSD (NON STOP DRILLER) CLAMP CONNECTION
95	95		BRAZING PIPE (FITTINGS)	BRAZING SOCKET (FITTINGS) / BEVELED TO WELD (ONLY DRILLING)
97	97		METRIC MALE WITH 90° MALE CONE ISO 4038	METRIC FEMALE DIN 74225
GS	GS			GS HYDRO RETAINRING FLANGE

TERMINATION END TYPES (CONTINUED)

DIGITS	EASY-FIT / FAST-FIT
1H	OYSTER HIGH PRESSURE
2H	EASY-FIT HIGH PRESSURE (CEJN)
1L	EASY-FIT LOW PRESSURE (OYSTER)
3H	FAST-FIT

DIGITS	ACCESSORIES FOR CONNECTORS (08...)
02	BSP BOLT
03	BSP BOLT DOUBLE HOLE
08	METRIC BOLT DIN 7643
20	ANTI-KINK
21	METAL SLEEVE
33	CLAMPS FOR FLANGE ISO/SAE 61
36	CLAMPS FOR FLANGE ISO/SAE 62
41	2 HOLES FLANGE CLAMP
42	ARMOUR - JOINT
50	DRILLING SAFETY CLAMP
60	DRILLING LIFT EYE
81	CLAMPS FOR MALE GROOVED
84	XTRAFLANGE/61 CLAMPS
85	XTRAFLANGE/62 CLAMPS
2H	CARTRIDGE FOR EASY-FIT HIGH PRESSURE

PRIORITY OF THE ENDS

The top-down list in each family follows this order:

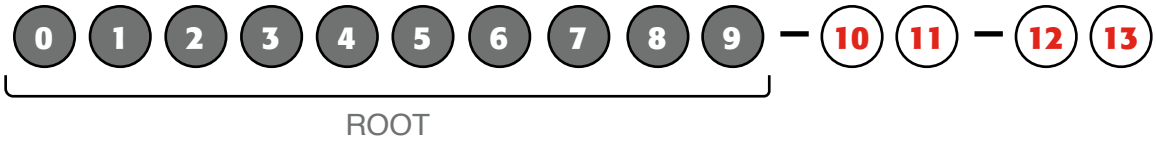
1. Standard Male
2. Bulkhead Male
3. Male for Port
4. Swivel Female
5. Fixed Female

DIGITS	DESCRIPTION
METRIC DIN 24°	
11	METRIC MALE 24° CONE SEAT LIGHT TYPE DIN 3861 / ISO 8434-1
12	METRIC MALE 24° CONE SEAT HEAVY TYPE DIN 3861 / ISO 8434-1
73	METRIC MALE 24° CONE SEAT LL SERIE ISO 8434-1
77	DIN BULKHEAD MALE 24° CONE LIGHT TYPE ISO 8434-1
87	DIN BULKHEAD MALE 24° CONE HEAVY TYPE ISO 8434-1
15	METRIC FEMALE 24° CONE O'RING LIGHT TYPE DIN 3865 / ISO 8434-1
16	METRIC FEMALE 24° CONE O'RING HEAVY TYPE DIN 3865 / ISO 8434-1
20	DIN METRIC STANDPIPE L.T. DIN 2353
21	DIN METRIC STANDPIPE H.T. DIN 2353
ORFS	
24	ORFS MALE ISO 8434-3 / SAE J1453
27	ORFS BULKHEAD MALE ISO 8434-3 / SAE J1453
29	ORFS MALE TYPE LONG SAE J1453
24	ORFS FEMALE ISO 8434-3 / SAE J1453
44	ORFS FEMALE LONG DROP ELBOW ISO 12151-1 / SAE J516
JIC	
25	JIC MALE 37° CONE ISO 8434-2 / SAE J514
23	JIC BULKHEAD MALE 37° CONE ISO 8434-2 / SAE J514
22	JIC MALE LONG 37° CONE SAE J514
25	JIC FEMALE 37° CONE ISO 8434-2 / SAE J514
47	JIC 37° CONE FEMALE LONG DROP ELBOW ISO 12151-5/ SAE J516
BSP	
05	BSP MALE 60° CONE SEAT BS5200 / ISO 8434-6
06	BSP MALE FLAT FACE DIN 3852-2 FORM A
07	BSPT MALE
64	BSP MALE FRONT SEAL
04	BSP MALE BULKHEAD
02	BSP MALE TAPERED THREAD LONG
01	BSP MALE DIN 3852-11 - ISO 1179-2 HEAVY DUTY "FORM E"
03	BSP MALE PARALLEL THREAD O'R FLAT FACE ISO 1179-3
09	BSP MALE O'RING BOSS ADJUSTABLE ISO 1179-3
44	BSP MALE FLAT FACE BONDED WASHER
71	BSP MALE METAL SEALING EDGE DIN 3852-2 FORM B
05	BSP FEMALE 60° CONE BS5200 / ISO 8434-6
08	BSP O-RING FEMALE 60° CONE BS5200 / ISO 8434-6
06	BSP FEMALE FLAT FACE DIN 3852-2 FORM A
01	FIXED FEMALE GAS JIS B 2351 "TYPE O"
04	BSP FIXED FEMALE DIN 3852-2 "FORM X" / ISO 1179-1
02	BSP FEMALE TAPERED

DIGITS	DESCRIPTION
SAE	
26	SAE MALE (45° CONE) SAE J512
30	MALE O'RING BOSS TYPE SAE J1926-3
31	MALE O'RING BOSS ADJUSTABLE LIGHT SAE J1926-3
32	MALE O'RING BOSS (ADJUSTABLE + NON-ADJUSTABLE HEAVY) SAE J1926-2
26	SAE FEMALE (45° CONE SEAT) SAE J512
30	FEMALE PORT SAE J1926-1
NPTF - NPT	
28	NPTF MALE 60° CONE SEAT SAE J476A
35	NPT MALE
28	NPSM SWIVEL FEMALE 60° CONE SAE J514
34	NPTF FIXED FEMALE SAE J476A
35	NPT FIXED FEMALE
OTHER METRIC ENDS	
10	METRIC MALE 60° CONE SUPERLIGHT DIN 3863
13	METRIC MALE FLAT FACE DIN 3852-1 FORM A
37	METRIC MALE 60° CONE SUPERLIGHT DIN 3863 BULKHEAD
88	MALE METRIC TAPERED THREAD
14	METRIC MALE DIN 3852-11 "FORM E" / ISO 9974-2
19	METRIC MALE WITH RETAINING RING (ADJUSTABLE + NON-ADJUSTABLE HEAVY) ISO 9974 PORT COMPATIBLE
66	METRIC MALE ISO 6149-2 / DIN 3852-3 FORM F
72	METRIC MALE METAL SEALING EDGE DIN 3852-1 FORM B
97	METRIC MALE WITH 90° MALE CONE ISO 4038
7W	WELD-IN BULKHEAD L SERIE ISO 8434-1 (WDBHS TYPE)
8W	WELD-IN BULKHEAD S SERIE ISO 8434-1 (WDBHS TYPE)
10	METRIC FEMALE 60° CONE SUPERLIGHT DIN 3863
13	METRIC FEMALE MULTISEAL CONE DIN 3868
97	METRIC FEMALE DIN 74225
14	METRIC FIXED FEMALE DIN 3852-1 "FORM X" AND "FORM Y"
19	METRIC FIXED FEMALE ISO 6149-1
FRENCH	
17	FRENCH MILLIMETRIC METRIC MALE 24° CONE SEAT
18	FRENCH GAZ METRIC MALE 24° CONE SEAT
82	FRENCH GAZ BULKHEAD METRIC MALE 24° CONE SEAT
17	FRENCH MILLIMETRIC METRIC FEMALE
18	FRENCH GAZ METRIC MALE 24° CONE SEAT
71	FRENCH MILLIMETRIC STANDPIPE
81	FRENCH GAZ STANDPIPE
JIS	
57	BSP MALE TAPERED THREAD - JIS B 8363
38	JIS B8363 TOYOTA MALE
40	KOMATSU METRIC MALE 60° CONE SEAT
07	JIS B 8363 (BSP - NISSAN) SWIVEL FEMALE
38	JIS B 8363 TOYOTA MALE JIS B 8363 (TOYOTA) SWIVEL FEMALE
40	JIS B 8363 (KOMATSU) SWIVEL FEMALE
33	FLANGE HEAD ISO/SAE 61 (ISO 6162-1 / SAE J518 CODE 61) WITHOUT O-RING
36	FLANGE HEAD ISO/SAE 62 (ISO 6162-2 / SAE J518 CODE 62) WITHOUT O-RING
83	4-BOLTS FLANGE HEAD CODE 61 WITHOUT O-RING
86	4-BOLTS FLANGE HEAD CODE 62 WITHOUT O-RING
33	FLANGE ISO/SAE 61 (ISO 6162-1 / SAE J518 CODE 61) WITH O-RING

DIGITS	DESCRIPTION
36	FLANGE ISO/SAE 62 (ISO 6162-2 / SAE J518 CODE 62) WITH O-RING
83	4-BOLTS FLANGE HEAD CODE 61 WITH O-RING
86	4-BOLTS FLANGE HEAD CODE 62 WITH O-RING
MINING	
48	STAPLE MALE SAE J1467
46	SUPER STAPLE MALE
59	FLUSHFIT MALE LOW PRESSURE
61	FLUSHFIT MALE HIGH PRESSURE
82	STAPLE LOCK SWIVEL FEMALE
72	SUPERSTAPLE LOCK SWIVEL FEMALE
62	FLUSHFIT SWIVEL FEMALE LOW PRESSURE
64	FLUSHFIT SWIVEL FEMALE HIGH PRESSURE
48	STAPLE FIXED FEMALE SAE J1467
46	SUPER STAPLE FIXED FEMALE
59	FLUSHFIT FIXED FEMALE LOW PRESSURE
61	FLUSHFIT FEMALE HIGH PRESSURE
OTHER ENDS	
54	AGRICULTURAL VALVE
53	BSP MALE FOR PRESSURE GAUGES
95	BRAZING PIPE
49	WASH CLEANING FEMALE
95	BRAZING SOCKET
EASY-FIT & FAST-FIT	
2H	EASY-FIT HIGH PRESSURE
3H	FAST-FIT
4H	DISCONNECTABLE FAST-FIT
BANJO SWIVEL	
B1	BSP MALE THREAD WITH EXTERNAL METALLIC SEALING RING (DKRA)
B2	METRIC MALE THREAD WITH EXTERNAL METALLIC SEALING RING (DKRA)
B3	BSP MALE THREAD WITH SUPPORT RING AND SOFTSEAL
B4	METRIC MALE THREAD WITH SUPPORT RING AND SOFTSEAL
B5	BSP MALE THREAD WITH PTFE RING
B6	METRIC MALE THREAD WITH PTFE RING
B7	BSP MALE THREAD WITH METAL SEALING EDGE DIN 3852-2 FORM B
B8	METRIC MALE THREAD WITH METAL SEALING EDGE DIN 3852-1 FORM B

HYDRAULIC QUICK COUPLINGS



DIGIT "0"



Value	Description
Q	Quick Coupling

DIGIT "1"



Value	Description
0	Hydraulic

DIGIT "2-3"



Quick Coupling Series - refer to "Quick Coupling Series" table

DIGIT "4"



Value	Material
1	Steel
2	AISI 316
3	AISI 303
4	Brass
5	Aluminium

HYDRAULIC QUICK COUPLINGS (CONTINUED)

DIGIT "5"



Value	Seal Material
0	None
1	NBR (Nitrile)
2	HNBR
3	FKM (Viton, FPM)
4	CR (Neoprene)
5	EPDM
6	FFPM (Kalrez)
7	NBR - Low Temperature
8	VMQ (Silicone Rubber)
9	AU (Polyurethane)
A	PTFE

DIGIT "6-7"



The numbers in these positions specify the termination end.
See "Termination Ends Type" table for coding details.

DIGIT "8"



Value	Description
0	Male
1	Female

DIGIT "9"



A letter in this position indicates a customised version.

DIGITS "10-11"



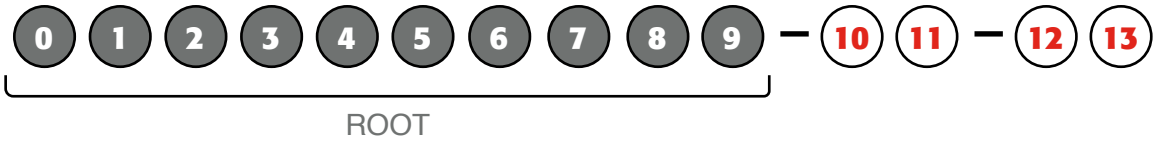
The numbers in this position indicate the Quick Coupling size.

DIGITS "12-13"



The numbers in this position indicate the thread size.

HYDRAULIC QUICK COUPLING TAILS



DIGIT "0"



Value	Description
Q	Quick Coupling

DIGIT "1"



Value	Description
3	Q.Tail

DIGIT "2-3"



Quick Coupling Series - refer to "Quick Coupling Series" table

DIGIT "4"



Value	Material
1	Steel
2	AISI 316
3	AISI 303
4	Brass
5	Aluminium

HYDRAULIC QUICK COUPLING TAILS (CONTINUED)

DIGIT "5"



Value	Seal Material
0	None
1	NBR (Nitrile)
2	HNBR
3	FKM (Viton, FPM)
4	CR (Neoprene)
5	EPDM
6	FFPM (Kalrez)
7	NBR - Low Temperature
8	VMQ (Silicone Rubber)
9	AU (Polyurethane)
A	PTFE
B	Ethylene-Propylene 41B8

DIGIT "6-7"



Value	Insert Type
MF	Multifit type

DIGIT "8"



Value	Insert Angle
1	Straight

DIGIT "9"



A letter in this position indicates a customised version.

DIGITS "10-11"



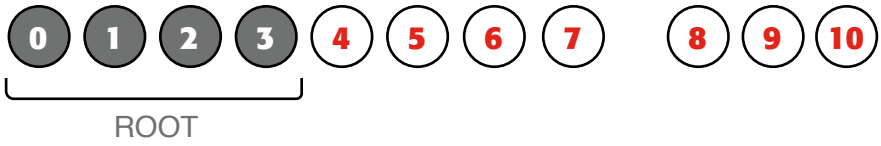
The numbers in this position indicate the Quick Coupling size.

DIGITS "12-13"



The numbers in this position indicate the Insert size.

HYDRAULIC QUICK COUPLING PLUGS, SEALS & CARTRIDGES



DIGIT "0"



Value	Description
Q	Quick Coupling

DIGIT "1"



Value	Description
1	Plugs and Seals

DIGITS "2-3"



Quick Coupling Series - refer to "Quick Coupling Series" table

DIGIT "4"



Value	Material
0	None
1	Steel
2	AISI 316
3	AISI 303
4	Brass
5	Aluminium
A	PE (polyethylene)
B	PVC
C	PA (polyammide)
D	POM (acetalic resin)

HYDRAULIC QUICK COUPLING PLUGS, SEALS & CARTRIDGES (CONTINUED)

DIGIT "5"

0 1 2 3 4 **5** 6 7 – 8 9 10

Value	Seal Material
0	None
1	NBR (Nitrile)
2	HNBR
3	FKM (Viton, FPM)
4	CR (Neoprene)
5	EPDM
6	FFPM (Kalrez)
7	PTFE
8	VMQ (Silicone Rubber)
9	AU (Polyurethane)

DIGIT "6"

0 1 2 3 4 5 **6** 7 – 8 9 10

Value	Function
0	Simple cap / plug
1	EcoCap (with oil recycle)
2	Automatic cap
3	Seal
4	Parking
5	Cartridge

DIGIT "7"

0 1 2 3 4 5 6 **7** – 8 9 10

Value	Colour
N	Not specified or natural
R	Red
B	Blue
Y	Yellow
G	Green
K	Black
W	Brown
H	White
O	Orange
E	Grey

HYDRAULIC QUICK COUPLING PLUGS, SEALS & CARTRIDGES (CONTINUED)

DIGITS "8-9"



Quick coupling size - corresponds to nominal internal hose diameter recommended for use with the coupling (see ISO 4397)

DIGIT "10"



Free digit for Version or other.

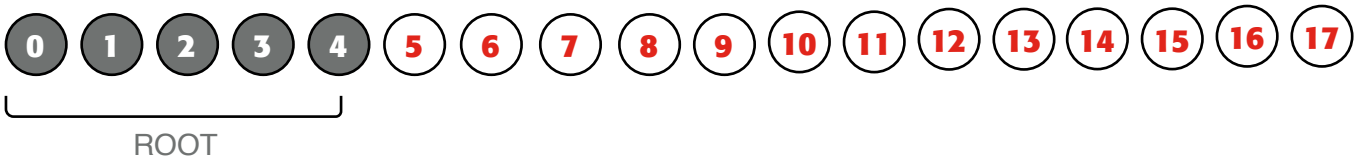
HYDRAULIC QUICK COUPLING SERIES

QC SERIES	PLUG & SEALS SERIES	DESCRIPTION	
01	A0	MALE ACCORDING TO ISO 7241-1 STANDARDS, SERIES A	FREE FLOW
02		MALE ACCORDING TO ISO 7241-1 STANDARDS, SERIES A	POPPET VALVE
03		MALE ACCORDING TO ISO 7241-1 STANDARDS, SERIES A	BALL VALVE
04		MALE ACCORDING TO ISO 7241-1 STANDARDS, SERIES A	POPPET VALVE, SPECIAL GUIDEVALVE
05		MALE ACCORDING TO ISO 7241-1 STANDARDS, SERIES A	BALL VALVE, SPECIAL GUIDEVALVE
06		MALE ACCORDING TO ISO 7241-1 STANDARDS, SERIES A	CONNECTABLE UNDER PRESSURE
07	A1	FEMALE ACCORDING TO ISO 7241-1 STANDARDS, SERIES A	FREE FLOW
08		FEMALE ACCORDING TO ISO 7241-1 STANDARDS, SERIES A	ONE-WAY RELEASE, POPPET VALVE
09		FEMALE ACCORDING TO ISO 7241-1 STANDARDS, SERIES A	ONE-WAY RELEASE, BALL VALVE
10		FEMALE ACCORDING TO ISO 7241-1 STANDARDS, SERIES A	ONE-WAY RELEASE, CONNECTABLE UNDER PRESSURE
11		FEMALE ACCORDING TO ISO 7241-1 STANDARDS, SERIES A	ONE-WAY RELEASE, CONNECTABLE WITH MALE UNDER PRESSURE
12		FEMALE ACCORDING TO ISO 7241-1 STANDARDS, SERIES A	ONE-WAY RELEASE, CONNECTABLE WITH BOTH PARTS UNDER PRESSURE
13		FEMALE ACCORDING TO ISO 7241-1 STANDARDS, SERIES A	TWO-WAYS RELEASE, POPPET VALVE
14		FEMALE ACCORDING TO ISO 7241-1 STANDARDS, SERIES A	TWO-WAYS RELEASE, BALL VALVE
15		FEMALE ACCORDING TO ISO 7241-1 STANDARDS, SERIES A	TWO-WAYS RELEASE, CONNECTABLE UNDER PRESSURE
16		FEMALE ACCORDING TO ISO 7241-1 STANDARDS, SERIES A	TWO-WAYS RELEASE, CONNECTABLE WITH MALE UNDER PRESSURE
17		FEMALE ACCORDING TO ISO 7241-1 STANDARDS, SERIES A	TWO-WAYS RELEASE, CONNECTABLE WITH BOTH PARTS UNDER PRESSURE
18		FEMALE ACCORDING TO ISO 7241-1 STANDARDS, SERIES A	RIGID, TWO-WAYS RELEASE, CONNECTABLE WITH MALE UNDER PRESSURE
19		FEMALE ACCORDING TO ISO 7241-1 STANDARDS, SERIES A	RIGID, TWO-WAYS RELEASE, CONNECTABLE WITH BOTH PARTS UNDER PRESSURE
20	A2	MALE ACCORDING TO ISO 7241-1 STANDARDS, SERIES B	FREE FLOW
21		MALE ACCORDING TO ISO 7241-1 STANDARDS, SERIES B	POPPET VALVE
22		MALE ACCORDING TO ISO 7241-1 STANDARDS, SERIES B	BALL VALVE
23	A3	FEMALE ACCORDING TO ISO 7241-1 STANDARDS, SERIES B	FREE FLOW
24		FEMALE ACCORDING TO ISO 7241-1 STANDARDS, SERIES B	ONE-WAY RELEASE, POPPET VALVE
25		FEMALE ACCORDING TO ISO 7241-1 STANDARDS, SERIES B	ONE-WAY RELEASE, BALL VALVE
26		FEMALE ACCORDING TO ISO 7241-1 STANDARDS, SERIES B	SAFETY SLEEVE, POPPET VALVE
27		FEMALE ACCORDING TO ISO 7241-1 STANDARDS, SERIES B	SAFETY SLEEVE, BALL VALVE
28	A4	MALE STANDARD SERIES	FREE FLOW
29		MALE STANDARD SERIES	POPPET VALVE
30		MALE STANDARD SERIES	BALL VALVE
31	A5	FEMALE STANDARD SERIES	FREE FLOW
32		FEMALE STANDARD SERIES	ONE-WAY RELEASE, POPPET VALVE
33		FEMALE STANDARD SERIES	ONE-WAY RELEASE, BALL VALVE
34		FEMALE STANDARD SERIES	SAFETY SLEEVE, POPPET VALVE

HYDRAULIC QUICK COUPLING SERIES (CONTINUED)

QC SERIES	PLUG & SEALS SERIES	DESCRIPTION	
35	A5	FEMALE STANDARD SERIES	SAFETY SLEEVE, BALL VALVE
36		FEMALE STANDARD SERIES	TWO-WAYS RELEASE, POPPET VALVE
37	A6	COMPACT MALE	FREE FLOW
38	A7	COMPACT FEMALE	FREE FLOW
39	A8	FLAT FACE MALE ACCORDING TO ISO 16028	
40		FLAT FACE MALE ACCORDING TO ISO 16028	CONNECTABLE UNDER PRESSURE
41	A9	FLAT FACE FEMALE ACCORDING TO ISO 16028	WITH SAFETY SLEEVE
42		FLAT FACE FEMALE ACCORDING TO ISO 16028	WITHOUT SAFETY SLEEVE
43	A8	FLAT FACE MALE ACCORDING TO ISO 16028	WORKING PRESSURE 35MPA
44	A9	FLAT FACE FEMALE ACCORDING TO ISO 16028	WORKING PRESSURE 35MPA
45	AC	MALE FOR DIAGNOSTIC PURPOSE ACCORDING TO ISO 15171	
46	AD	FEMALE FOR DIAGNOSTIC PURPOSE ACCORDING TO ISO 15171	
47	AE	MALE FOR HYDRAULIC BRAKING CIRCUIT ACCORDING TO ISO 5676	
48	AF	FEMALE FOR HYDRAULIC BRAKING CIRCUIT ACCORDING TO ISO 5676	
49	AG	SCREW TYPE MALE FOR HYDRAULIC BRAKING CIRCUIT	
50	AH	SCREW TYPE FEMALE FOR HYDRAULIC BRAKING CIRCUIT	
51	AI	SCREW TYPE MALE FOR GERMAN MARKET	
52	AJ	SCREW TYPE FEMALE FOR GERMAN MARKET	
53	AK	SCREW TYPE MALE FOR VERY HIGH PRESSURE	
54	AL	SCREW TYPE FEMALE FOR VERY HIGH PRESSURE	
55	AM	SCREW TYPE MALE FOR HYDRAULIC CYLINDER	
56	AN	SCREW TYPE FEMALE FOR HYDRAULIC CYLINDER	
57	AP	SCREW TYPE MALE FOR TRUCK	
58	AQ	SCREW TYPE FEMALE FOR TRUCK	
59	AR	COMPACT FLAT FACE MALE SCREW TYPE	
60	AS	COMPACT FLAT FACE FEMALE SCREW TYPE	
61	AI	SCREW TYPE MALE FOR GERMAN MARKET	HEAVY DUTY
62	AJ	SCREW TYPE FEMALE FOR GERMAN MARKET	HEAVY DUTY
63	AT	SCREW TYPE MALE FOR U.S. MARKET	(NOT AVAILABLE IN OTHER MARKETS - NO CATALOGUE)
64	AU	SCREW TYPE FEMALE FOR U.S. MARKET	(NOT AVAILABLE IN OTHER MARKETS - NO CATALOGUE)
65	A1	FEMALE ACCORDING TO ISO 7241-1 STANDARD, SERIES A	RIGID, TWO WAYS RELEASE
66	AV	FLAT FACE MALE SCREW TYPE	
67	AW	FLAT FACE FEMALE SCREW TYPE	

ASSEMBLY MACHINES



DIGIT "0"



Value	Description
E	Always means "Equipment"

DIGIT "1"



Value	Description
O	Assembly Machines
S	Spare Parts

DIGIT "2"



The letter in this position identifies the equipment type.

Value	Equipment Type
A	Assembly
C	Cutting
S	Skiving
L	Cleaning
M	Marking
I	Insert Pushing
T	Test Bench
F	Flushing

ASSEMBLY MACHINES (CONTINUED)

DIGIT "3" 0 1 2 **3** 4 5 6 7 8 9 10 11 12 13 14 15 16 17

The number in this position identifies the supplier.

Value	Supplier
1	Finnpower
2	Uniflex
3	Techmaflex
4	OP
5	Hydroscand

DIGIT "4" 0 1 2 3 **4** 5 6 7 8 9 10 11 12 13 14 15 16 17

The number in this position identifies the platform.

Value	Platform	
1	MRI 1	Portable machines
2	MRI 2	Small benchtop < 2" 2T
3	MRI 3	Benchtop for professional service >2" 2T
4	MRI 4	Production stand type machines
5	MRI 5	Top level stand type machines (Industrial, Special), eg. rotary hose crimper
6	MRI 6	Second hand machines

DIGIT "5" 0 1 2 3 4 **5** 6 7 8 9 10 11 12 13 14 15 16 17

The number in this position identifies the version.

Value	Version	
1	Basic	MRI except for mobile machines ('V' machines)
2	Medium	MRI 2 and MRI 3 (Benchtop)
3	Top	MRI 4 and some MRI 5 (XL)
4	Top Bis	MRI 5 sup, at 100t
5	Mobile	'V' machines (12V, 24V)

ASSEMBLY MACHINES (CONTINUED)

DIGIT "6" 0 1 2 3 4 5 **6** 7 8 9 10 11 12 13 14 15 16 17

The number or letter in this position identifies the power system.

Value	Power System
0	Manual
1	12V
2	24V
3	220/240V 1PH 50HZ
4	380/415V 3PH 50HZ
5	110V 1PH 60 HZ
6	208/240V 3PH 60HZ (to be associated with code 9)
7	220/240V 3PH 50HZ
8	220/240V 1PH 60HZ
9	208/240V 3PH 60HZ
A	220/240V 1PH 50HZ
B	380/415V 3PH 60HZ
C	208/240V 3PH 60HZ
D	440V 3PH 50HZ
E	220/240V 1PH 60HZ
F	440/480V 3PH 60HZ
G	200V 3PH 50HZ
H	110V 1PH 50HZ
I	240V 1PH 50HZ
K	220/380/440V 3PH 50HZ
L	208V 1PH 60HZ

DIGIT "7" 0 1 2 3 4 5 6 **7** 8 9 10 11 12 13 14 15 16 17

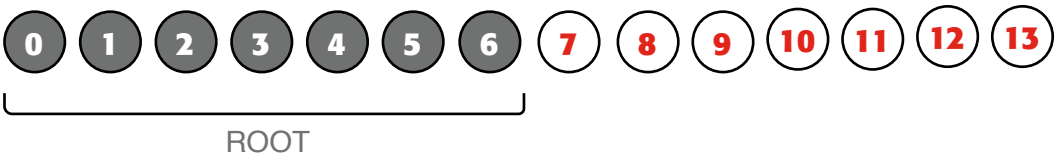
The letter in this position identifies the version.

Value	Description
S	Die sets included
N	Die sets not included

DIGITS "8-17" 0 1 2 3 4 5 6 7 **8 9 10 11 12 13 14 15 16 17**

Free digits for special characteristics

HOSE PROTECTIONS



DIGIT "0"



Value	Description
J	Always means "Accessories"

DIGIT "1"



Value	Description
P	Always means "Protection"

DIGIT "2"



Value	Protection Type
1	Spring
2	Sleeve
3	Clinch
4	Flexible armour

DIGIT "3"



Value	Material
1	Polyethylene
2	Polyammide
3	Polyester
4	Silicone
5	Stainless steel
6	Steel

HOSE PROTECTIONS (CONTINUED)

DIGIT "4"



Value	Colour
B	Black
Y	Yellow
A	Orange
G	Grey
M	Metal
T	Other

DIGITS "5-6"



Value	Product Family
01	Protection spring
02	Mining protection spring
03	HT Protection spring
04	Light protection spring
05	Fire sleeve
06	Textile sleeve
07	Round metal sleeve
08	Heat protection spring
09	BOP hose flexible armour
10	Clinch

DIGITS "7-8-9"



The numbers in these positions indicate the internal diameter in mm.

HOSE PROTECTIONS (CONTINUED)

DIGITS "10-11-12-13" 0 1 2 3 4 5 6 7 8 9 **10** **11** **12** **13**

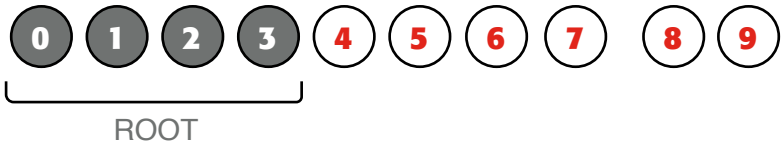
Letters and numbers in these positions describe branding, packaging or special length information.

Value	Branding Information
E	Embossed / Embedded
I	Inkjet
T	Textile

Value	Packaging Information
0	Embossed/Embedded

Value	Branding
99	Standard

RING & SEAL



DIGIT "0"



Value	Description
J	Always means "Accessories"

DIGIT "1"



Value	Description
0	Always means "Rings"

DIGITS "2-3"



Value	Description
01	O'ring for SAE 3000 and 6000 PSI flange
02	O'ring imperial size
03	O'ring metric size
04	O'ring for Staple Lock
05	O'ring for MSAE
06	O'ring and metallic anti-extrusion ring for metric series
07	O'ring for BSPP
08	Metallic anti-extrusion ring for male BSPP
09	O'ring for ETCAO
10	Flat seal built in
11	Copper sealing ring
12	Bonded seal ring
13	Flange counter-ring for "Caterpillar" insert
14	Seal type for SAE 3000 and 6000 PSI flange
15	Support plastic ring (open ring)
16	kit bonded seal rings
17	Kit copper sealing rings
18	Kit O'ring metric size
19	O'ring for ORFS
20	O'ring for H.P washer fitting
21	O'ring for refri fitting
22	Cylindrical seal for refri connector
23	O'ring for Super Staple Lock
24	Metal sealing ring for banjos
25	Metal sealing ring for pressure gauge connectors
26	Soft sealing ring for banjos
27	Elastomeric (captive) seal - NBR
28	Elastomeric (captive) seal - Viton
29	Interlock Plus O-Ring
30	One-piece Polyurethane seal for Staple Low Pressure (Yellow)
31	One-Piece Polyurethane seal for Staple High Pressure (Red)

RING & SEAL (CONTINUED)

DIGITS "4-5"



The numbers in these positions indicate the external diameter in mm.

DIGITS "6-7"



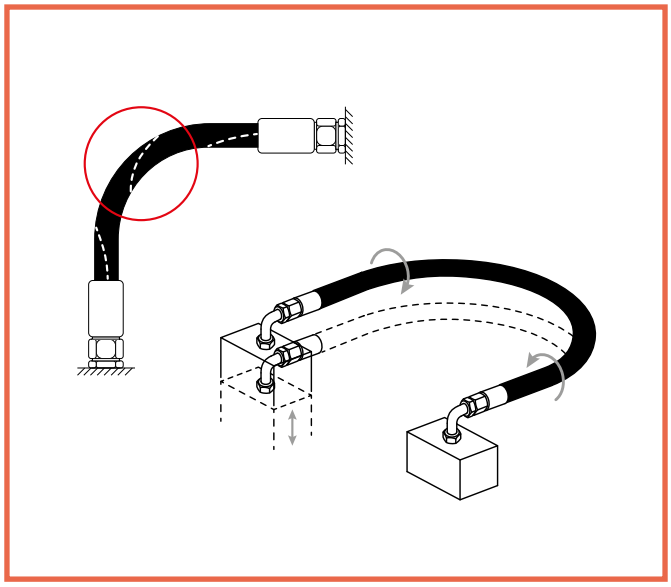
The numbers in these positions indicate the internal diameter in mm.

DIGITS "8-9"

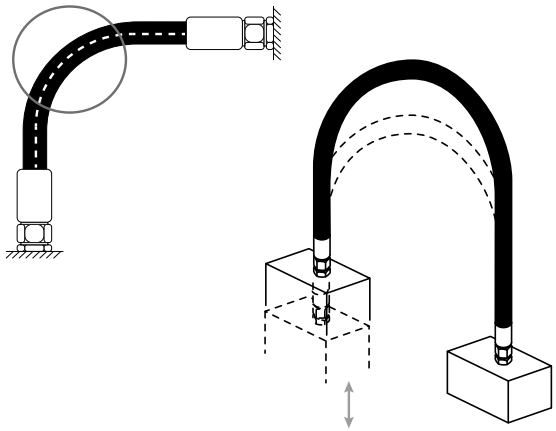


The numbers in these positions indicate the axial thickness in mm.

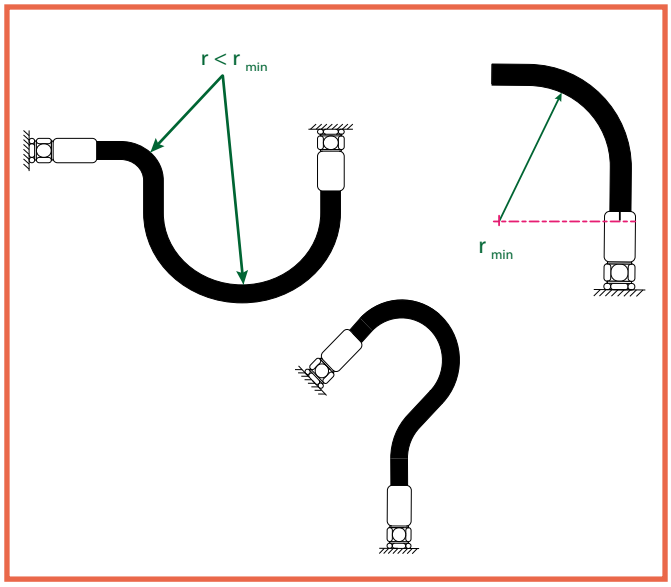
INCORRECT USE

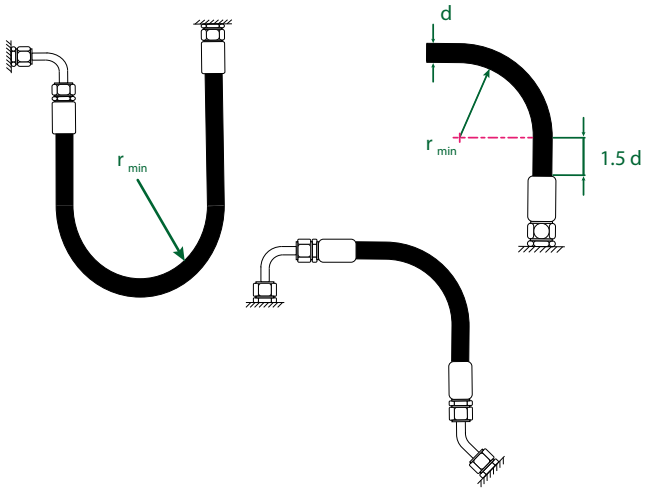


CORRECT USE



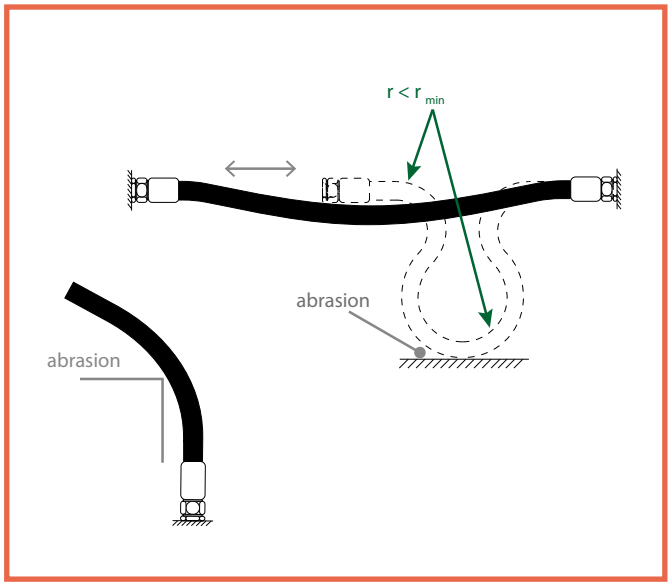
- Avoid twisting the hose assembly when installing.
- Avoid situations where moving parts will cause twisting effects on the hose assemblies after installation.



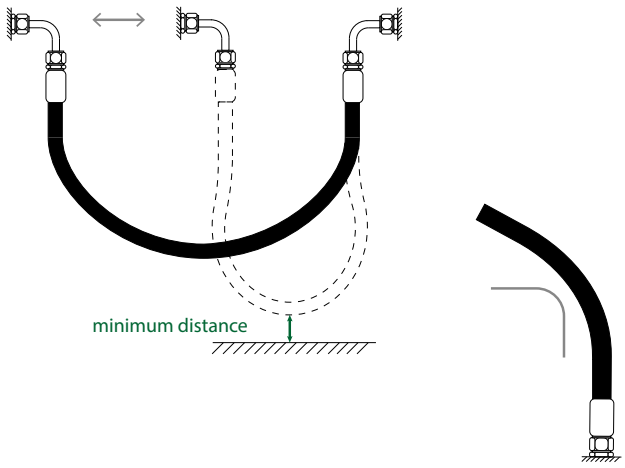


- Select the correct fittings to avoid tight bend radii.
- Ensure a minimum distance of 1.5 x “d” after the ferrule before hose bending.

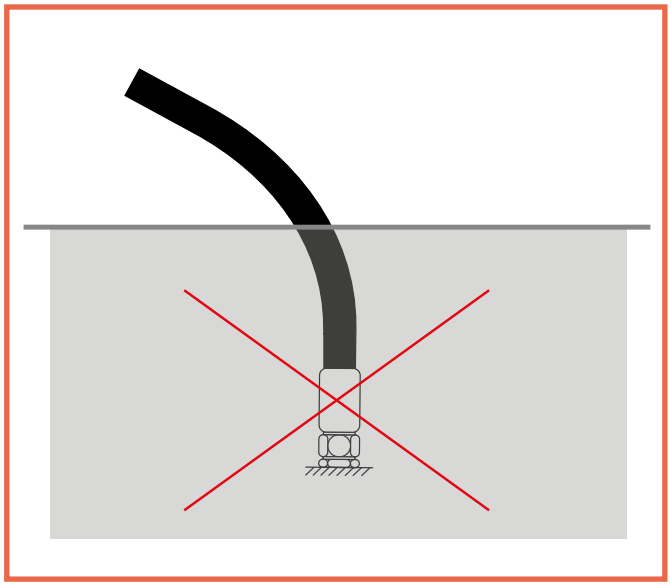
INCORRECT USE



CORRECT USE



- Avoid interference with objects that can cause abrasion or damage to the hose.
- In flexing applications ensure that the hose is not subjected to tensile stresses or to impacts / abrasion from the surrounding environment.



The Manuli hydraulic hose product range is not designed for immersion in the service fluid. This type of special application should be avoided or carefully studied with reference to the hose specifications

For detailed information concerning recommended practices for hydraulic hose assemblies, please refer to SAE J1273 and ISO/TS 17165-2. This document should be used as a guide when selecting, routing, fabricating, installing, replacing, maintaining and storing hose for hydraulic systems.

PRODUCT SELECTION AND INSTALLATION

The information in this document concerning hoses, fittings and other items manufactured and provided by Manuli Rubber Industries and its subsidiaries, is provided for the express purpose of aiding in the correct selection of products for particular applications. However it is the responsibility of the customer to ensure that they consider the specific details of the application during the selection process.

Important factors to consider include:

- Hose size
- Hose length
- Fluid compatibility
- Ambient and operating temperatures
- System operating pressures
- Static head pressures
- Installation design
- Minimum bend radii
- Possible abrasion of the hose
- Movement and flexing of the hose during operation

Improper selection and / or installation of hydraulic hose assemblies can result in reduced assembly life, equipment failure, property damage, bodily injury or death.

HOSE INTEGRATION

Manuli hoses and fittings are designed to be part of an integrated hose assembly system. As such they should only be used together or in conjunction with other types of fittings recommended by Manuli Rubber Industries and its subsidiaries. Failure to observe these requirements may result in a reduced lifespan of the hose assemblies or other failures which can cause equipment failure, property damage, bodily injury or death.

Manuli provides guidelines for the proper assembly, installation, maintenance and use of its products and further information on recommended practices is available in SAE J1273 and ISO/TS 17165-2.

Should you have any questions regarding proper assembly, installation or application usage of any Manuli product, please contact our Technical Centre in Italy.

WARNING!

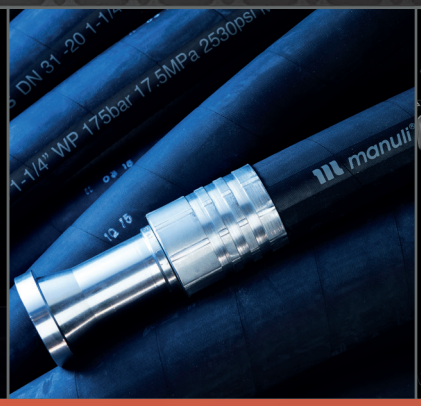
Improper selection or use of any of the products found in this document may result in property damage, bodily injury or death. Consider all aspects of your application carefully to ensure that the products selected are the most appropriate for the task.

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